

# JVC

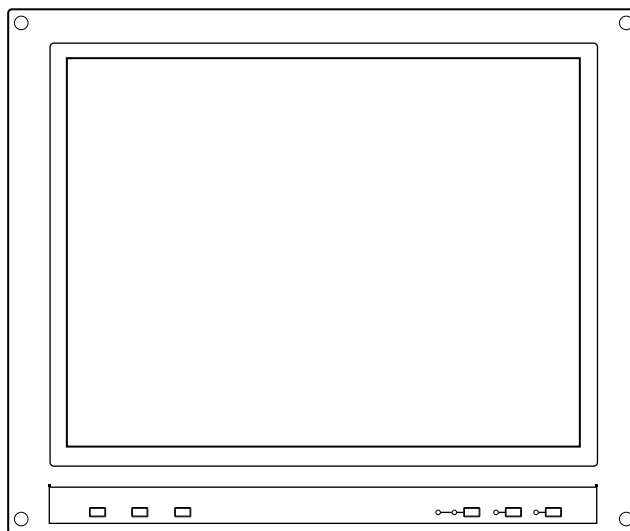
## SERVICE MANUAL

LCD VIDEO MONITOR

**LM-15G** /U

**LM-15G** /E

**LM-15G** /C



### TABLE OF CONTENTS

1. PRECAUTIONS .....	1-3
2. SPECIFIC SERVICE INSTRUCTIONS .....	1-6
3. DISASSEMBLY .....	1-7
4. ADJUSTMENT .....	1-12
5. TROUBLE SHOOTING .....	1-13

## SPECIFICATION

Items		Contents
<b>Type</b>		LCD Video Monitor
<b>Dimensions (W × H × D)</b>		37cm × 31.1cm × 14.2cm
<b>Mass</b>		3.7kg
<b>Color system</b>		PAL / NTSC
<b>Scanning frequency</b>		H : 31.5kHz ~ 60kHz(PC) / 15.734kHz(NTSC) / 15.625kHz(PAL) V : 56Hz ~ 70Hz(PC) / 59.94(NTSC) / 50Hz(PAL)
<b>Power Input</b>		AC100V/AC240V, 50Hz/60Hz
<b>Power consumption</b>		35W
<b>LCD Panel</b>		15-in, active matrix TFT
<b>Picture Tube</b>		Visible size : 38cm(Diagonal) / 30.4cm × 22.8cm(H × V)
<b>Display Pixels</b>		Hovizontal : 1024 pixel × Vertical : 768 pixel
<b>Input/Output terminals</b>	<b>VIDEO A</b>	Composite video, BNC connector ×2, 1V(p-p), 75Ω negative sync (bridge connection possible, auto termination)
	<b>VIDEO B</b>	Composite video, BNC connector ×2, 1V(p-p), 75Ω negative sync (bridge connection possible, auto termination)
	<b>PC input</b>	Analog RGB : D-sub(16 pin) ×1, positive 0.7 (p-p)
	<b>REMOTE INPUT</b>	RCA pin ×1
	<b>ASPECT</b>	RCA pin ×1

**NOTE:** Design & specifications are subject to change without notice.

# SECTION 1 PRECAUTION

## 1.1 SAFETY PRECAUTIONS

- (1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
- (2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
- (3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
- (4) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**  
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (  $\nearrow$  ) side GND, the ISOLATED (NEUTRAL) : (  $\perp$  ) side GND and EARTH : (  $\oplus$  ) side GND. Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.).  
If above note will not be kept, a fuse or any parts will be broken.
- (5) If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).
- (6) The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
- (7) Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.

- (8) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

### (9) Isolation Check (Safety for Electrical Shock Hazard)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

### a) Dielectric Strength Test

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second. (. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.) This method of test requires a test equipment not generally found in the service trade.

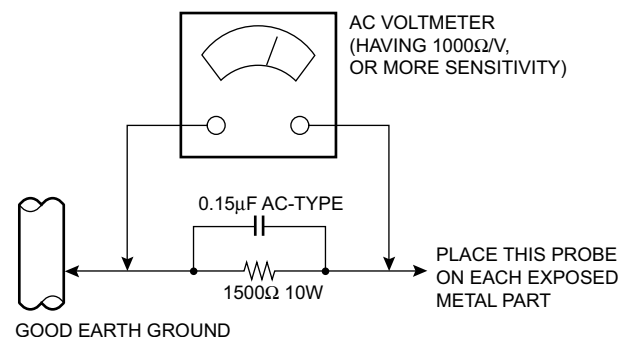
### b) Leakage Current Check

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.). However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

### Alternate Check Method

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).

However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



## 1.2 INSTALLATION

### 1.2.1 HEAT DISSIPATION

If the heat dissipation vent behind this unit is blocked, cooling efficiency may deteriorate and temperature inside the unit will rise.

Therefore, please make sure pay attention not to block the heat dissipation vent as well as the ventilation outlet behind the unit and ensure that there is room for ventilation around it.

### 1.2.2 INSTALLATION REQUIREMENTS

Ensure that the minimal distance is maintained, as specified below, between the unit with and the surrounding walls, as well as the floor etc.

Install the unit on stable flooring or stands.

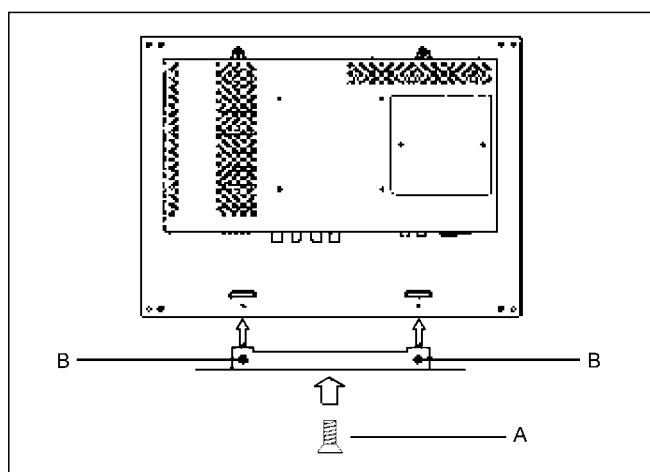
Take precautionary measures to prevent the unit from tipping in order to protect against accidents and earthquakes.

	front	side	Note
<b>1. Hang on the wall</b>			<p>Use the metal fittings of the exclusive use option.</p> <p>Install has to be done by professional construction trader</p> <p>Please confirm the structure and the strength of the wall to install beforehand. It attempts accident prevention and safe securing .</p>
<b>2. Hang from the ceiling</b>			<p>Install on the fixed floor and the stand.</p> <p>To prevent from an accident and for the safe securing of an earthquake and so on, please process for tumble prevention.</p>
<b>3. Put on the table</b>			

### 1.2.3 FALL TIP PREVENTION MEASURES

Take precautionary measures to prevent the unit from falling or tipping to protect against emergencies such as earthquakes as well as accidents.

Attach the supplied stand to the monitor as shown, and then fix it with the screws. Please fix the stand with the supplied screw (A) first, and then fix it with the screws (B).



### 1.3 PRECAUTIONS

- (1) Depending on the around temperature, the brightness leaning occurs. Be careful of the environment in the product installation place and so on sufficiently.
- (2) Don't hinder radiation from the back, the heaven and the side. Please refer to the next page that explains about the condition of the installation.  
The inside becomes hot if hindering radiation and there is fear, which the inner circuit damages.
- (3) Install in the place with good ventilation. Use in the condition that around temperature is in the 0~35°C range.
- (4) Avoid preservation and use at the high temperature or high humidity place. If you behave like this, leaning sometimes happens in the screen when the set actives.
- (5) Depending on the condition and the environment of display, the slight fleck of the light and leaning of the screen and so on is sometimes conspicuous. This is the characteristic which is peculiar to liquid crystal display. It is not set trouble.
- (6) This monitor has cool cathode pipe as the backlight. The time change and the use time sometimes change brightness and condition of display.

### 1.4 THE ATTENTION IN TRANSPORTATION

When transporting a set, if the load handling is bad (throwing, falling and so on) however it is using a solid box, pressure inside liquid crystal display.

In the case there is fear to break the liquid crystal display while transporting. To prevent from the accident or trouble while transporting, pay attention to choice of the transportation company sufficiently and also arrange for it in the delivery after the attention of the load handling is explained to the transportation company.

This set is used glass for composing liquid crystal display. When carrying, pay attention not to add over vibration and impact sufficiently.

## **SECTION 2**

### **SPECIFIC SERVICE INSTRUCTIONS**

#### **2.1 DESCRIPTION ABOUT LIQUID CRYSTAL PANEL**

##### **2.2.1 STRUCTURE OF LIQUID CRYSTAL PANEL**

The Liquid Crystal Panel of this model is TFT Panel. The Print circuit board that consist of TFT array and the print circuit board adopted stripe shaped image element alignment are used. These two boards are mixed. The Liquid crystal is enclosed between two boards.

##### **2.1.2 LONG RANGE AFTERIMAGE OF LIQUID CRYSTAL**

The small amount of ion material has mixed a liquid crystal panel with the liquid crystal material in the manufacturing process. If ion material is piled up partially among the poles when the voltage is impressed among the poles, the brightness difference occurs and becomes a long-range afterimage. If same picture is reflected for long time, such a long-range afterimage occurs. If the long-range afterimage occurs, we recommend that you reflect the single color image and so on to restore.

##### **2.1.3 THE DISPLAY REPLYING SPEED OF LIQUID CRYSTAL**

Because the speed to display of Liquid crystal panel is slower than the speed of the CRT monitor, some of the moving picture cannot overtake to the speed to display and the image looks flowing is sometimes displayed. This is not trouble, but efficiency of Liquid Crystal.

##### **2.1.4 THE EYESIGHT CORNER OF LIQUID CRYSTAL**

The liquid crystal panel has the wide eyesight corner for which it is difficult to reverse brightness. The tint changes depending on the direction to see a screen. This is not trouble, but efficiency of Liquid Crystal.

##### **2.1.5 THE PICTURE ELEMENT FAULT OF LIQUID CRYSTAL**

The liquid crystal panel is composed of precise technique but all devices don't always work right.

#### **2.2 ATTENTION ITEMS WHEN REPLACING PARTS**

##### **2.2.1 ATTENTION TO EXCHANGE THE LIQUID CRYSTAL PANEL**

- (1) The stillness electricity sometimes makes damage a liquid crystal panel. In liquid crystal panel exchange, do a measure of the stillness electricity such as the earth band.
- (2) A liquid crystal panel and back-light are made from glass. If you gain an impact to these materials, there is fear to damage. So in case of treatment, be careful sufficiently.
- (3) Fix with the screw after confirming that there is not a float to chassis base when exchanging liquid crystal panel. After that reflect all the black signals and confirm that brightness leaning doesn't occur near the screw fixation part. When brightness leaning occurs, slacken a screw in the neighborhood until the brightness leaning is running-out.
- (4) Fix the torque that installs a screw below 0.294Nm. If you install at any more torque, the liquid crystal panel is transformed and sometimes damages.
- (5) If you pull out or insert each connector when power is ON, it causes the trouble. So pull out or insert each connector in the condition to have pulled out a power supply plug.

##### **2.2.2 ATTENTION WHEN EXCHANGING THE BACK-LIGHT**

- (1) The back-light is the glass which used cool cathode pipe. In treatment and exchange, pay attention to the following point.
- (2) Leave the set for a while in the condition that the power is off. Behave the exchanging after lamp's getting cold sufficiently.
- (3) Adhering the garbage or dust to the luminous part causes brightness leaning. Don't touch a part except the lamp folder.
- (4) The lamp part is fear to break if extra power is gained by the part of the neighborhood of the liquid crystal panel and so on. Handle the lamp folder and pull out slowly.
- (5) In installation, insert the lump slowly until the nail of the lamp fixation hangs.
- (6) Dispose of the exchanged background light according to the local code.

##### **2.2.3 ATTENTION WHEN EXCHANGING THE MAIN PWB**

To show the original efficiency of the MAIN PWB, pull out a heat think from the previous MAIN PWB and install it in the new PWB surely.

##### **2.2.4 ATTENTION WHEN EXCHANGING THE FUSE**

When exchanging the fuse, please use specified parts. After fuse exchange, confirm that insulater is set to the shield and insulate surely.

## SECTION 3 DISASSEMBLY

### 3.1 DISASSEMBLY PROCEDURE

#### CAUTION:

- Even with the power switch off, some parts of the unit are live. Be sure to disconnect the power plug from the AC outlet before disassembly and reassembly.
- Remove the power cord.

#### 3.1.1 REMOVING THE BASE

- (1) Lie down the unit and let panel downward.
- (2) As shown in Fig.1, remove 1 screw [A] and loosen the two spring screws on BASE.
- (3) Slightly remove the BASE.

#### 3.1.2 REMOVING THE FUNCTION COVER

- Remove the BASE.
- (1) As shown in Fig.1, remove 5 screws [B].
  - (2) Shift the FUNCTION COVER toward BASE and raise upward.

#### 3.1.3 REMOVING THE MAIN PWB

- Remove the FUNCTION COVER.
- (1) As shown in Fig.1, remove 4 screws [C].
  - (2) Slightly remove the MAIN PWB upward.

#### 3.1.4 REMOVING THE POWER PWB

- Remove the FUNCTION COVER.
- (1) As shown in Fig.1, remove 4 screws [D].
  - (2) As shown in Fig.1, remove 1 screw [E], and remove the earth wire.
  - (3) Slightly remove the POWER PWB upward.

#### 3.1.5 REMOVING THE INVERTER PWB

- Remove the FUNCTION COVER.
- (1) As shown in Fig.1, remove 3 screws [F].
  - (2) Slightly remove the INVERTER PWB upward.

#### 3.1.6 REMOVING THE BNC INPUT PWB

- Remove the FUNCTION COVER.
- (1) As shown in Fig.1, remove 2 screws [G].
  - (2) Slightly remove the BNC INPUT PWB upward.

#### 3.1.7 REMOVING THE FRONT COVER

- Remove the BASE.
- (1) Lie down the unit and let panel upward.
  - (2) As shown in Fig.1, remove 4 screws [H].
  - (3) Slightly remove the FRONT COVER.

#### 3.1.8 REMOVING THE LCD PANEL, THE LCD BRACKET (R) AND THE LCD BRACKET (L)

- Remove the FRONT COVER.
- (1) As shown in Fig.1, remove 4 screws [J].
  - (2) Raise LCD PANEL upward.
  - (3) As shown in Fig.1, remove 4 screws [K].
  - (4) Remove the LCD BRACKET (R) and the LCD BRACKET (L).

#### 3.1.9 REMOVING THE CONTROL BRACKET

- Remove the FRONT COVER.
- (1) As shown in Fig.1, remove 3 screws [M].
  - (3) Remove the CONTROL BRACKET upward.

#### 3.1.10 REMOVING THE CONTROL BUTTON

- Remove the CONTROL BRACKET.
- (1) As shown in Fig.1, remove 4 screws [N].
  - (2) Remove two CONTROL BUTTON downward.

#### 3.1.11 REMOVING THE FRONT CONTROL 1 PWB AND THE FRONT CONTROL 2 PWB

- Remove the CONTROL BRACKET.
- (1) As shown in Fig.1, remove 2 screws [P].
  - (2) Remove the FRONT CONTROL 1 PWB upward.
  - (3) As shown in Fig.1, remove 2 screws [Q].
  - (4) Remove the FRONT CONTROL 2 PWB upward.

#### 3.1.12 REMOVING THE BACK COVER AND THE TERMINAL BRACKET

- Remove the FUNCTION COVER.
  - Remove the MAIN PWB
  - Remove the POWER PWB
  - Remove the INVERTER PWB
  - Remove the BNC INPUT PWB
  - Remove the FRONT COVER
  - Remove the LCD PANEL.
  - Remove the CONTROL BRACKET
- (1) As shown in Fig.1, remove 4 screws [S].
  - (2) Remove the BACK COVER and the TERMINAL BRACKET.

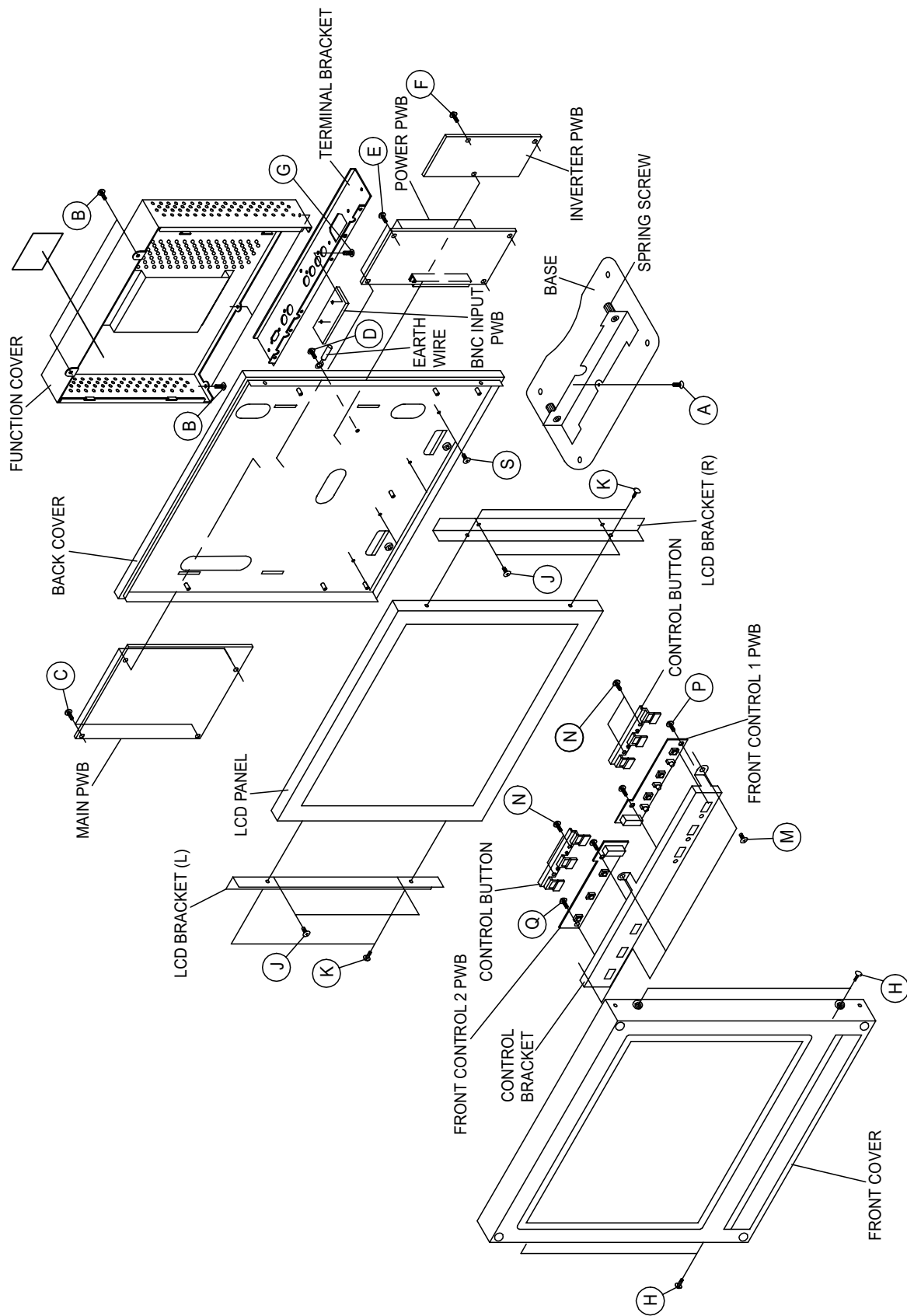


Fig. 1



### 3.2 REPLACEMENT OF MEMORY IC

#### 3.2.1 MEMORY IC

The memory is in the MAIN PWB. The MAIN PWB is only for reference. Avoid replacing individual parts. Replace entire unit only. When the microcomputer or the memory are out of order, exchange a MAIN PWB.

### 3.3 USER SETTING

#### ■ PC side

Setting item	Setting content	Setting value
BACK LIGHT	0 – 100	100
CONTRAST	0 – 100	50
H. POSITION	0 – 100	50
V. POSITION	0 – 100	50
COLOR TEMP.	HIGH,NATURAL,LOW,USER	NATURAL
H. OSD POSITION	0 – 100	50
V. OSD POSITION	0 – 100	50
REMOTE	ON/OFF	OFF

#### ■ Video side (VIDEO A,B)

Setting item	Setting content	Setting value
BACK LIGHT	0 – 100	100
PICTURE	0 – 100	0
PHASE	0 – 45	23
CHROMA	0 – 100	80
ASPECT	4 : 3, 16 : 9	4 : 3
COLOR TEMP.	HIGH,NATURAL,LOW,USER	NATURAL
LOW LIGHT ADJ.	0 – 255	20
SIGNAL LEVEL	STD,AMP	STD
H. OSD POSITION	0 – 100	50
V. OSD POSITION	0 – 100	50
AGC	ON/OFF	ON
REMOTE	ON/OFF	OFF

### 3.4 REPLACEMENT OF CHIP COMPONENT

#### 3.4.1 CAUTIONS

- (1) Avoid heating for more than 3 seconds.
- (2) Do not rub the electrodes and the resist parts of the pattern.
- (3) When removing a chip part, melt the solder adequately.
- (4) Do not reuse a chip part after removing it.

#### 3.4.2 SOLDERING IRON

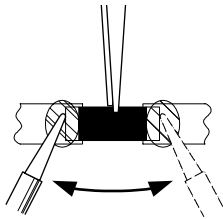
- (1) Use a high insulation soldering iron with a thin pointed end of it.
- (2) A 30w soldering iron is recommended for easily removing parts.

#### 3.4.3 REPLACEMENT STEPS

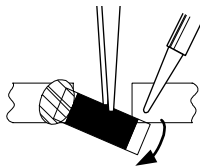
##### 1. How to remove Chip parts

###### [Resistors, capacitors, etc.]

- (1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.

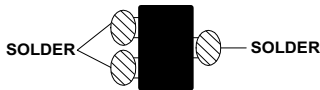


- (2) Shift with tweezers and remove the chip part.

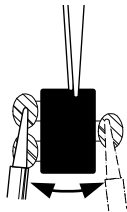


###### [Transistors, diodes, variable resistors, etc.]

- (1) Apply extra solder to each lead.



- (2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.



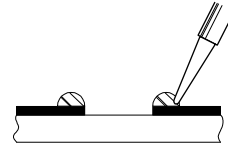
#### Note :

After removing the part, remove remaining solder from the pattern.

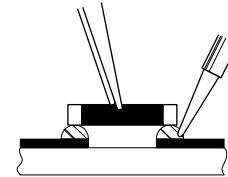
##### 2. How to install Chip parts

###### [Resistors, capacitors, etc.]

- (1) Apply solder to the pattern as indicated in the figure.

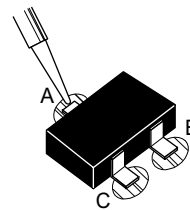


- (2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

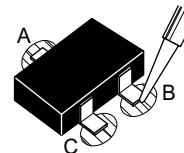


###### [Transistors, diodes, variable resistors, etc.]

- (1) Apply solder to the pattern as indicated in the figure.
- (2) Grasp the chip part with tweezers and place it on the solder.
- (3) First solder lead A as indicated in the figure.



- (4) Then solder leads B and C.



## **SECTION 4 ADJUSTMENT**

The service manual does not describe ADJUSTMENT.

## **SECTION 5**

### **TROUBLE SHOOTING**

The service manual does not describe TROUBLE SHOOTING.



VICTOR COMPANY OF JAPAN, LIMITED

AV & MULTIMEDIA COMPANY DISPLAY CATEGORY 12, 3-chome, Moriya-cho, kanagawa-ku, Yokohama, kanagawa-prefecture, 221-8528, Japan

(No. 52151)



Printed in Japan  
WPC

# INSTRUCTIONS

## LCD VIDEO MONITOR

# LM-15G

Thank you for purchasing this JVC LCD video monitor. Before using it, read and follow all instructions carefully to take full advantage of the monitor's capabilities.

(\* "LCD" stands for Liquid Crystal Display.)

**For Customer Use:**

Enter below the Serial No. which is located on the rear of the cabinet. Retain this information for future reference.

Model No. : LM-15G \_\_\_\_\_

Serial No. : \_\_\_\_\_

# Contents

---

<b>Safety Precautions .....</b>	<b>3</b>
<b>Installation.....</b>	<b>5</b>
Unpacking the Monitor.....	5
Controls and Features .....	5
<b>Using Your Monitor .....</b>	<b>7</b>
Turning the Monitor On and Off .....	7
Caring for and Cleaning the Monitor .....	7
<b>Using the Menu .....</b>	<b>8</b>
Summary of Control Buttons.....	8
Menu Operations.....	8
Using the Monitor in the PC mode.....	13
<b>Basic Connection Example .....</b>	<b>14</b>
<b>Troubleshooting .....</b>	<b>15</b>
<b>Specifications .....</b>	<b>16</b>

# SAFETY PRECAUTIONS

In order to prevent any fatal accidents caused by disoperation or mishandling the monitor, be fully aware of all the following precautions.

## WARNINGS

To prevent fire or shock hazard, do not expose this monitor to rain or moisture. Dangerous high voltages are present inside the unit. Do not remove the back cover of the cabinet. When servicing the monitor, consult qualified service personnel. Never try to service it yourself.

## WARNING: THIS APPARATUS MUST BE EARTHED.

This monitor is equipped with a 3-blade grounding-type plug to satisfy FCC rule. If you are unable to insert the plug into the outlet, contact your electrician.

## FCC NOTICE (U.S.A. only)

**CAUTION:** Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## PRECAUTIONS

- Use only the power source specified on the unit.
- When not using this unit for a long period of time, or when cleaning it, be sure to disconnect the power plug from the AC outlet.
- Do not allow anything to rest on the power cord. And do not place this unit where people will tread on the cord. Do not overload wall outlets or power cords as this can result in a fire or electric shock.
- Avoid using this unit under the following conditions:
  - in extremely hot, cold or humid places,
  - in dusty places,
  - near appliances generating strong magnetic fields,
  - in places subject to direct sunlight,
  - in badly ventilated places,
  - in automobiles with doors closed.
- Do not cover the ventilation slots while in operation as this could obstruct the required ventilation flow.
- When dust accumulates on the screen surface, clean it with a soft cloth.



- Unplug this unit from the AC outlet and refer servicing to qualified service personnel under the following conditions:
  - when the power cord is frayed or the plug is damaged,
  - if liquid has been spilled into the unit,
  - if the unit has been dropped or the cabinet has been damaged,
  - when the unit exhibits a distinct change in performance.
- Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Always refer servicing to qualified service personnel.
- When replacement parts are required, have the service personnel verify in writing that the replacement parts he/she uses have the same safety characteristics as the original parts. Use of manufacture's specified replacement parts can prevent fire, shock, or other hazards.
- Upon completion of any servicing or repair work to this unit, please ask the service personnel to perform the safety check described in the manufacturer's service literature.
- When this unit reaches the end of its useful life, improper disposal could result in a picture tube implosion. Ask qualified service personnel to dispose of this unit.

## POWER CONNECTION

The power supply voltage rating of this product is AC 120 V (For U.S.A. and Canada only) and AC 230 V (For European countries or United Kingdom), the power cord attached conforms to the following power supply voltage and countries. Use only the power cord designated to ensure Safety and EMC regulations of each countries.

### Power cord



Power supply voltage :	AC 120 V	AC 230 V	AC 230 V	AC 220V
Countries :	U.S.A. and Canada	European countries	United Kingdom	Chinese

### Warning:

- Do not use the same Power Cord for AC 120 V as for AC 230 V. Doing so may cause malfunction, electric shock or fire.

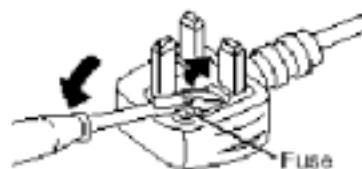
### Note for the United Kingdom power cord only

The plug on the United Kingdom power cord has a built-in fuse. When replacing the fuse, be sure to use only a correctly rated approved type, re-fit the fuse cover. (Consult your dealer or qualified service personnel.)

### How to replace the fuse

Open the fuse compartment with the blade screw driver,  
And replace the fuse.

(\* An example is shown in the illustration.)



# Installation

Please follow the instructions in this chapter to install your LCD Monitor.

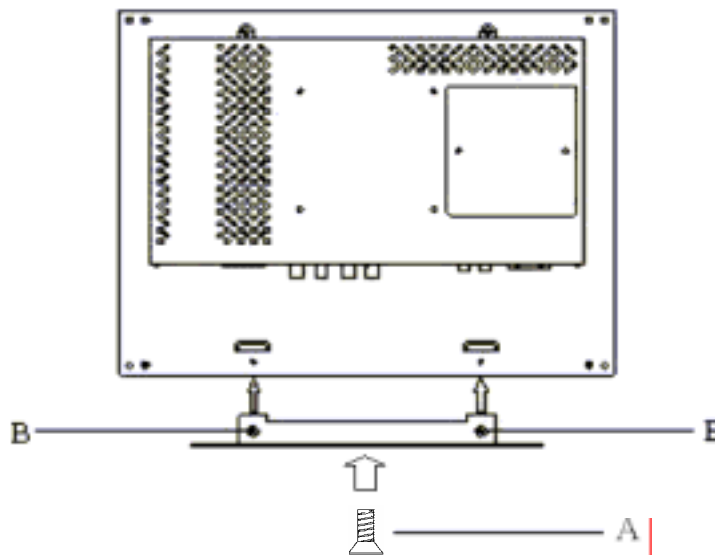
**Note:** Before connecting your monitor, first read through the instructions in this chapter and the safety precautions in the previous chapter.

## Unpacking the Monitor

When you are unpacking the monitor, make sure that you have the following items:

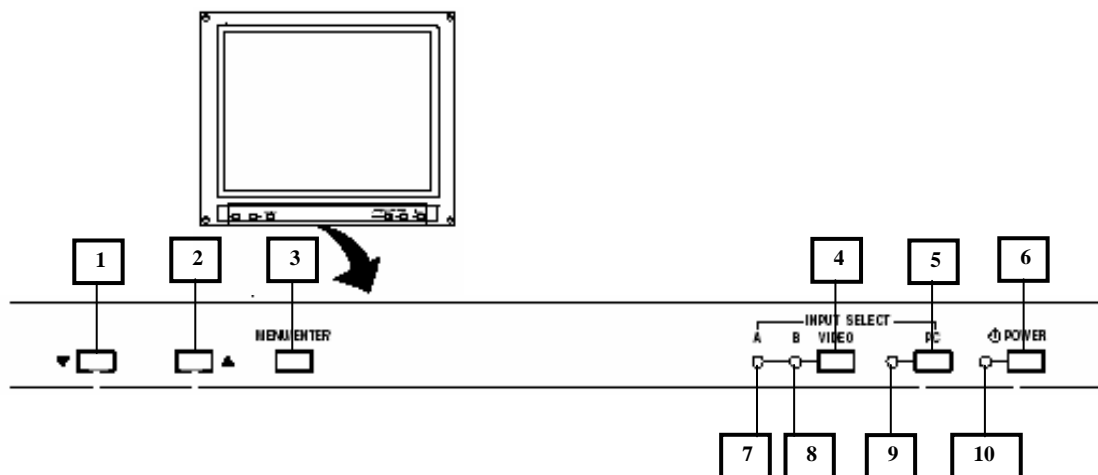
- ⇒ The LCD monitor
- ⇒ AC power cord
- ⇒ Stand and screw
- ⇒ This instruction book

**Note:** Place the monitor on a flat, sturdy surface. Choose an area free from excessive heat, moisture, and sunlight.

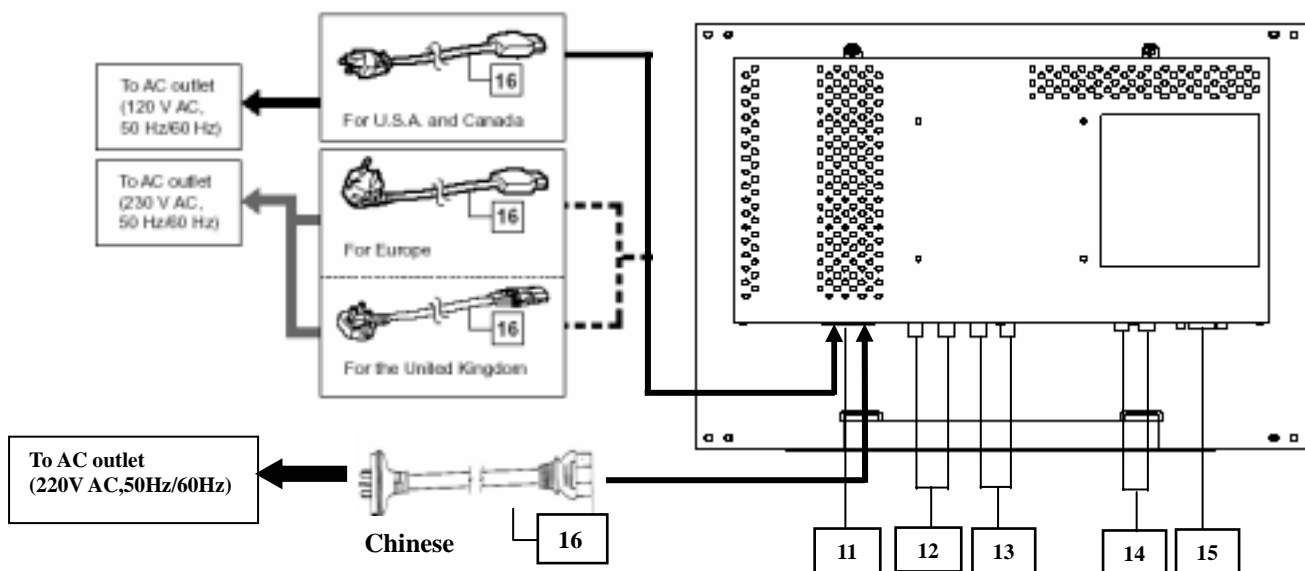


Attach the supplied stand to the monitor as shown, and then fix it with the screws. Please fix the stand with the supplied screw (A) first, and then fix it with the screws (B).

## Controls and Features



1 Down ( ▼ ) button	Use this button for menu operation. (See page 8) Displays the "AUTO SET UP" menu in the PC mode. (See page 13)
2 UP ( ▲ ) button	Use this button for menu operation. (See page 8) Displays the "AUTO SET UP" menu in the PC mode. (See page 13)
3 MENU/ENTER button	Use this button for menu operation. (See page 8)
4 Video button	Selects the VIDEO A or B input.
5 PC button	Selects the PC input.
6 Power switch [POWER]	Press this to turn the power on or off.
7 VIDEO A indicator	Lights when VIDEO A input is selected.
8 VIDEO B indicator	Lights when VIDEO B input is selected.
9 PC indicator	Lights when PC input is selected.
10 Power indicator	Lights in green when the power is on. Unlit when the power is off. Lights in amber when the monitor is in a reduced power mode, when there is no signal or when the signal is out of range.



11 AC inlet	Connect the provided AC power cord 16 to this inlet. Then connect the AC power cord 16 to the AC outlet (120V AC/220V AC or 230V AC, 50Hz/60Hz)
12 VIDEO A terminals	Video signal input (IN) and output (OUT) terminals for VIDEO A input.
13 VIDEO B terminals	Video signal input (IN) and output (OUT) terminals for VIDEO B input.
14 Remote (external control) terminals	Terminals for controlling the monitor from external unit. You can select input signals, or change the ASPECT RETIO setting via the Remote terminals.
15 PC input terminal	You can connect this monitor to your PC. Before using this terminal, please see the "Video Modes (Analog PC signal)" and "Unknown Video Modes (Analog PC signal)" on page 18.
16 AC power cord (Provided)	CAUTION: In North America (USA and Canada), this monitor comes with one power cord. In Europe and the United kingdom, two power cords are provided. Be sure to use the power cable that is appropriate for the AC outlets used in your region. If none of the power cord provided is suitable, please contact your dealer or qualified service personnel to obtain the correct type of power cord.

Note: For more details about connections, see the "Basic Connection Example" on page 14.

# Using Your Monitor

---

This chapter contains information about using your LCD Monitor.

## Turning the Monitor On and Off

Use the power button located at the lower right side of the front panel of the monitor to turn the monitor on and off. When the monitor is on, the Power indicator near the Power button lights green.

The monitor goes into the reduced power mode when there is no video signal input. And then the Power indicator changes amber from green.

The Power indicator lights amber when the video signal input is out of range .

**Note:** Because of the technology used in LCD panels, screen savers will not prolong the life of your monitor . So if the monitor will not be used for an extended period, be sure to turn it off.

## Caring for and Cleaning the Monitor

To maximize screen life and prevent damage to the LCD panel, we recommend that you:

- ⇒ Turn the monitor off when you are not using this monitor for a long period of time.
- ⇒ Don't press, rub, or poke the monitor with your finger or other object.
- ⇒ Handle your monitor with care.

Your LCD module is a high-quality optical device that requires special care when cleaning.

### Warning

Don't use liquid, aerosol, or abrasive cleaning solutions to clean the

To clean the screen:

1. Turn off and unplug the monitor.
2. Gently dust the screen with a dry, soft, line-free cloth.

**Note:** If the screen is still dirty, you can dampen the cloth with several drops of distilled water. Make sure the LCD panel is completely dry before you turn the monitor on.



# Using the Menu

This chapter contains information about how to changing monitor settings for your LCD Monitor. It is designed with an menu to help you easily adjust to its optimum performance.

**Note:** In the PC mode, do the “AUTO SET UP” setting first, before adjusting any settings. For details, see “AUTO SET UP” on page 13.

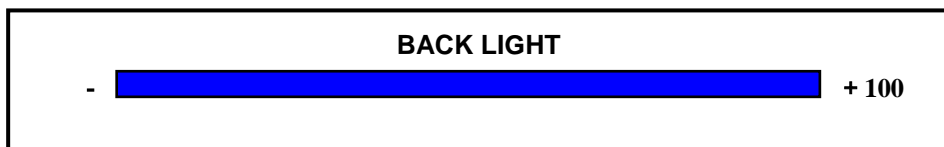
## Summary of Control Buttons

There are three control buttons located at the lower part of the front panel of your monitor:

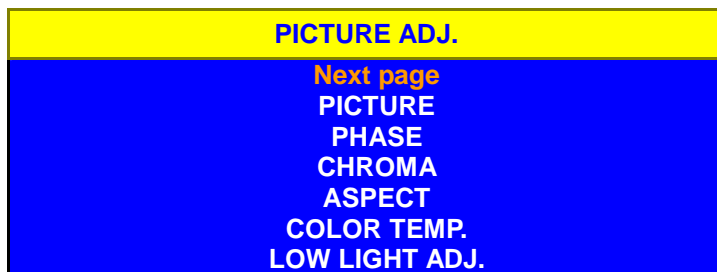
- ⇒ **MENU/ENTER**: Display and select a menu. You can also exit a menu by pressing this button repeatedly.
- ⇒ **UP**(): Move upward through the choice in the submenu. If an adjustment bar is displayed, this button increases the setting value.
- ⇒ **Down**(): Move downward through the choice in the submenu. If an adjustment bar is displayed, this button decreases the setting value.

## Menu Operation

1. Press the '**MENU/ENTER**' button to display the “**BACK LIGHT**” menu..



2. Press the '**MENU/ENTER**' button repeatedly to display the menu you want to use.



3. Press the '**UP**' and '**DOWN**' button to choose the item, and then press the '**MENU/ENTER**' button to display the sub-menu.



- If the item do not have sub-menu, go to the step 4.
4. Press '**UP**' and '**DOWN**' button to adjust it, or choose a setting.
  5. Press the '**MENU/ENTER**' button repeatedly to exit the menu.
- To return to the menu from the sub-menu, press the '**MENU/ENTER**' button
  - The menu will disappear if no operation is performed for approximately 15 seconds.

## In the VIDEO A or B mode (composite video input):

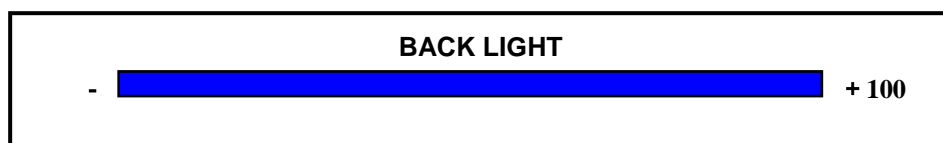
Menu	Items
<b>BACK LIGHT</b>	You can adjust the light output of the backlight.
<b>PICTURE ADJ.</b>	PICTURE, PHASE, CHROMA, ASPECT, COLOR TEMP., LOW LIGHT ADJ. .
<b>SYSTEM SETTING</b>	SIGNAL LEVEL, DISPLAY, OSD POSITION, COLOR SYSTEM, AGC, REMOTE, All reset

## In the PC mode (analog RGB input):

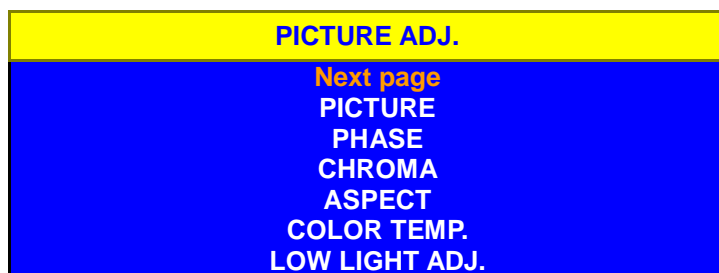
Menu	Items
<b>BACK LIGHT</b>	You can adjust the light output of the backlight.
<b>CONTRAST</b>	You can adjust the contrast of the picture.
<b>POSITION ADJ.</b>	H.POSITION, V. POSITION
<b>WHITE BALANCE ADJ.</b>	COLOR TEMP., LOW LIGHT ADJ.
<b>DISPLAY ADJ.</b>	AUTO SET UP, CLOCK, PHASE
<b>SYSTEM SETTING</b>	DISPLAY, OSD POSITION, REMOTE, All reset

## BACK LIGHT menu

You can adjust the light output of the backlight.



## PICTURE ADJ. menu



**PICTURE:** You can adjust the levels of black and white on the screen, giving you a darker or brighter picture overall.

**PHASE:** You can adjust the picture hue. When the COLOR SYSTEM is BW60, BW50 or PAL, you cannot adjust the PHASE.

**CHOROMA:** You can adjust the picture color density. When the COLOR SYSTEM is BW60 or BW50, you cannot adjust the CHOROMA.

**ASPECT:** You can choose the screen aspect ratio between "4:3" and "16:9".

**COLOR TEMP.:** If you select 'COLOR TEMP.' and press the 'MENU/ENTER' button, the "COLOR TEMP." menu will appear. For details, see the following "COLOR TEMP." menu.

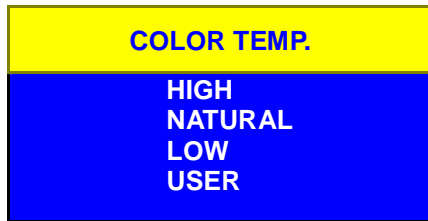
**LOW LIGHT ADJ.:** At the video mode: You can adjust the brightness of the dark part of picture.

At the PC mode: You can adjust the R.G.B. balance of the dark part of picture. For details of the adjustments, see "HIGH LIGHT ADJ." in page10

**Next page:** If you select 'Next page' and press the 'MENU/ENTER' button, the next menu will appear.

## COLOR TEMP. menu

1. Press the '**UP**' and '**DOWN**' button to choose the "COLOR TEMP.", and then press the '**MENU/ENTER**' button to display the sub-menu.



2. Press '**UP**' and '**DOWN**' button to choose one of four Color temp settings: HIGH, NATURAL, LOW and USER.

### "USER" setting:

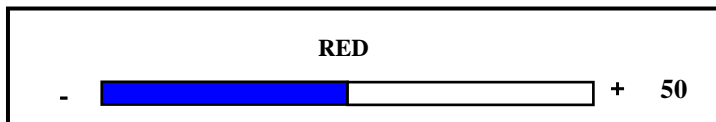
You can store the adjustments of "HIGH LIGHT ADJ." to the "USER" setting.

- In "HIGH", "NATURAL" and "LOW", you cannot use "HIGH LIGHT ADJ."

1. Press the '**UP**' or '**DOWN**' button to choose the "USER", and then press the '**MENU/ENTER**' button to return to the "HIGH LIGHT ADJ." menu.

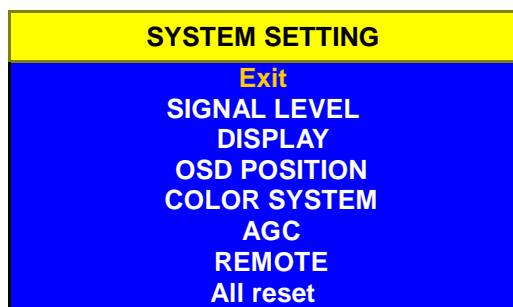


2. Press '**UP**' and '**DOWN**' button to choose "RED", and then press '**MENU/ENTER**' button to display the adjusting menu.



3. Press '**UP**' or '**DOWN**' button to adjust the level, and then press '**MENU/ENTER**' button to return to the sub-menu
4. Repeat step 3 and 4 for other colors "GREEN" and "BLUE" to complete the "HIGH LIGHT ADJ." setting.

## SYSTEM SETTING menu



**SIGNAL LEVEL:** You can choose the signal level from "STD." or "AMP."

STD.: Select this for normal operation.

AMP.: Select this to watch dark part of the picture better.

**DISPLAY:** If you select 'DISPLAY' and press the 'MENU/ENTER' button, you can confirm the current status; resolution, Horizontal frequency and Vertical frequency.

**COLOR SYSTEM:** You can choose the color system from NTSC, PAL, BW60 or BW50. Choose the correct color system when the color is abnormal or no color appears.

**AGC:** You can turn the AGC (Auto Gain Control) function on (ON) or off (OFF). If you select off(OFF), you can adjust contrast bar.

**REMOTE:** If you select ON, you can only do remote control. If you select OFF, you can control only by using the monitor's buttons.

**Exit:** If you select "Exit" and press the 'MENU/ENTER' button, the menu will disappear.

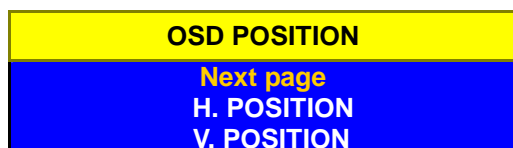
**All reset:** If you select "All reset" and press the 'MENU/ENTER' button, the settings will be return to the factory settings.

\* "COLOR SYSTEM" and the input select will not be return to the factory settings.

### OSD POSITION:

You can adjust the position of the menu on the screen as following procedure.

1. Select "OSD POSITION" and press the 'MENU/ENTER' button, the sub-menu will appear.

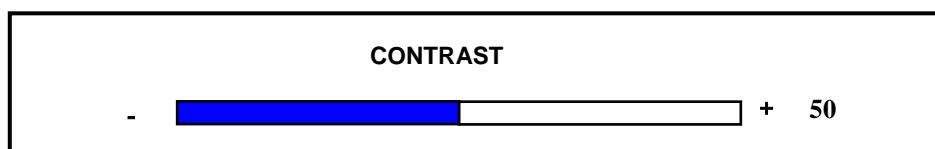


2. Press 'UP' and 'DOWN' button to choose "H. POSITION" (horizontal position) or "V. POSITION" (vertical position), and then press 'MENU/ENTER' button to display the adjusting menu
3. Press 'UP' and 'DOWN' button to adjust the position of the menu on the screen.
4. Press 'MENU/ENTER' button to return to the "OSD POSITION" menu.

**Next page:** If you select 'Next page' and press the 'MENU/ENTER' button, the next menu will appear.

## CONTRAST menu

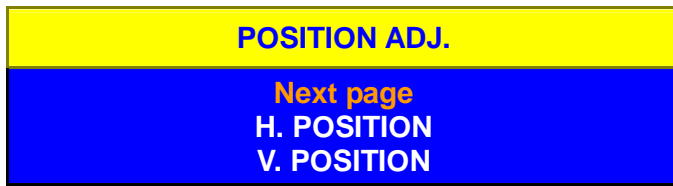
You can adjust the contrast of the image from the PC.





## POSITION ADJ. menu

You can adjust the position of the image from the PC on the screen.



1. Press '**UP**' and '**DOWN**' button to choose "H. POSITION" (horizontal position) or "V. POSITION" (vertical position), and then press '**MENU/ENTER**' button to display the adjusting menu
2. Press '**UP**' and '**DOWN**' button to adjust the position of the picture on the screen.
3. Press '**MENU/ENTER**' button to return to the "POSITION ADJ." menu.

**Next page:** If you select '[Next page](#)' and press the '**MENU/ENTER**' button, the next menu will appear.

## DISPLAY ADJ. menu

You can do the necessary adjustments to display the image from the PC.



### AUTO SET UP:

We recommend you to do the AUTO SET UP first. And then adjust the CLOCK or PHASE if necessary. To use the AUTO SET UP, select this item and press '**MENU/ENTER**' button. And follow the step 2 of the description "AUTO SET UP" on page 13.

**CLOCK:** You can adjust the Clock.

**PHASE:** You can adjust the Phase.

**Next page:** If you select '[Next page](#)' and press the '**MENU/ENTER**' button, the next menu will appear.

# Using the Monitor in the PC mode

Since the inherent format of this monitor is 1024 pixels by 768 lines, the monitor will perform best when your PC is set to a screen resolution of 1024 x 768. If you use a lower resolution (such as 640 x 480), the image is expanded to fill the screen

Your monitor supports many common video modes, as shown in "Video Modes" on page 18. Check the manuals supplied with your PC and video adapter card to find out which modes they support. To see what the video mode in your Microsoft Windows, please check Windows' settings in your PC.

Do the AUTO SET UP first when you use the monitor in the PC mode.

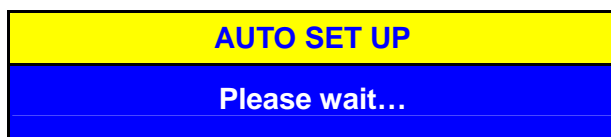
## AUTO SET UP

You can setup this monitor to display the analog RGB signal from your PC. Please do the AUTO SET UP whenever you apply a new video mode or change the refresh rate from the PC.

1. Press '**UP**' or '**DOWN**' button while no menu appears on the screen.  
The "AUTO SET UP" menu appears on the screen



2. Press '**UP**' or '**DOWN**' button to choose "**YES**", and then press '**MENU/ENTER**' button to start the AUTO SET UP.  
The monitor will do the necessary settings for new PC input automatically.



When you start the AUTO SET UP, do not display moving images (games, videos, etc) on the screen.

3. After the AUTO SET UP is complete, you will be asked whether the image is displayed correctly or not.



4. If the image looks correct, press '**UP**' or '**DOWN**' button to choose "**YES**".  
The menu disappears.

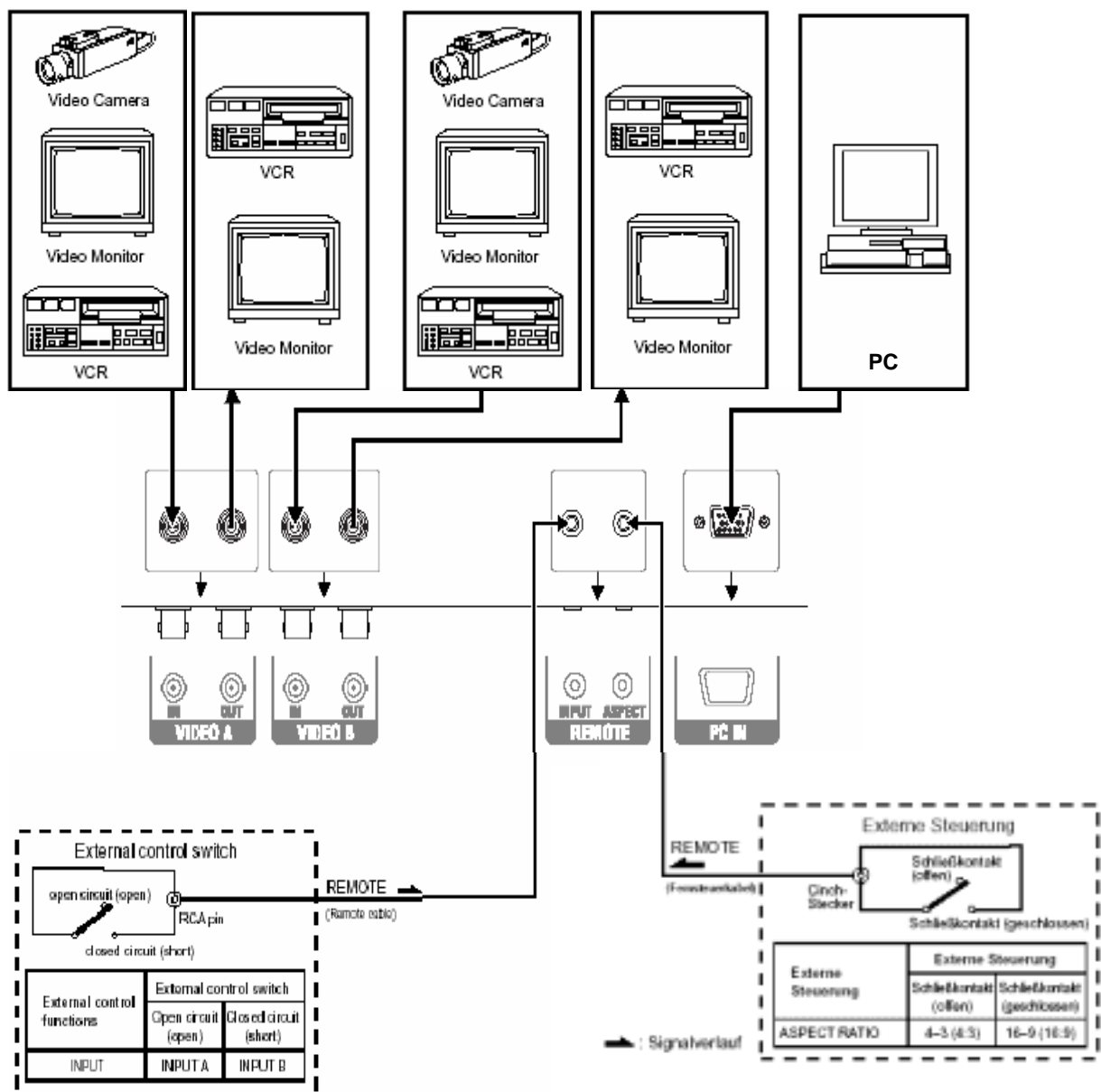
If the image requires further adjustment, press '**UP**' or '**DOWN**' button to choose "**NO**". "PHASE" menu will appear and you can adjust the PHASE by '**UP**' or '**DOWN**' button.  
When all text appears well focused and there is no instability in the image, press the '**MENU/ENTER**' button.  
The menu disappears.

**Note:** You can also start the AUTO SET UP with "DISPLAY ADJ." menu.

# Basic Connection Example

## Notes:

- Before connecting your system, make sure that all devices are turned off.
- The illustration shows some examples of different connections. Terminal connections may differ depending on the devices. Be sure to refer to the manuals provided with the devices.
- Each pair of input (IN) and output (OUT) terminals are bridge-connected
- If you're not connecting any equipment to a bridged output (OUT) terminal, be sure not to connect any other cables to the bridged output (OUT) terminal as this will cause the terminating resistance switch to open (auto terminate function).
- When making a bridge connection, connect the input (IN) and output (OUT) terminals on the monitor to separate video components. (For example, if both terminals are connected to the same VCR, resonance may occur except during playback. This is caused by the same video signal "looping" between the VCRs, and is not a malfunction.)
- The ASPECT or INPUT A/B settings can be controlled via the ASPECT or INPUT jack in the REMOTE terminal.
- When using REMOTE terminal, set REMOTE function ON . See "SYSTEM SETTING menu " on page 11.



# Troubleshooting

Solutions to common problems related to your monitor are described here. If none of the solutions presented here solve the problem, unplug the monitor and consult a JVC-authorized dealer or service centre for assistance.

## A. My monitor doesn't work.

- Check that the power cable is securely plugged into the monitor.
- Check that the monitor is turned on.
- Turn the monitor off and pull the plug out, then put the plug in again and turn the monitor on.

## B. My monitor shows no colors, wrong color, or dark pictures.

- Check that the color system is selected correctly. See "SYSTEM SETTING menu" on page 11.
- Check the BACK LIGHT and PICTURE ADJ. settings. See "BACK LIGHT menu" and "PICTURE ADJ. menu" on page 9.
- In the PC mode, check the CONTRAST setting. See "CONTRAST menu" on page 11.

## C. Dark stripes appear at the top and bottom of the screen, picture vertically squeezed.

- Set the ASPECT setting to "4:3". See "PICTURE ADJ. menu" on page 9.

## D. The message "No Sync" appears .

This message appears when there is no video signal. After few seconds, the monitor goes into the reduced power mode.

- Check the connection.
- Select the required video signal input.
- Connect the video signal cable firmly.
- Check that your graphic card outputs the analog RGB signal.

## E. The message "Signal Out of Range" appears on my monitor.

This message appears when the input signal is beyond the monitor capability.

Set your PC to a supported video mode; preferably 1024 x 768 at 60 Hz.

## F. The image is very unstable in the PC mode.

- Set your PC to a supported video mode; preferably 1024 x 768 at 60 Hz.
- Restore the original factory settings by "All reset". See "SYSTEM SETTING menu" on page 11.
- Do the "AUTO SET UP". See "AUTO SET UP" on page 13.

**Note:** Even if your PC's setting is out of the range of video modes that are supported by your LCD monitor, it may still be displayed with reduced quality. This provides you with an opportunity to change your PC's setting to a correct one.

## The following are not malfunctions:

- The monitor emits a strange sound when the room temperature changes suddenly. This is only a problem if an abnormality appears on the screen as well.
- When a still image has been displayed for a long period, a faint residual image may remain on the screen for a short time after the power has been turned off or when another image is displayed. The image will eventually disappear.
- When you see the monitor from the side, the color or brightness look different.
- The LCD panel is made with high-precision technology and has more than 99.99% effective pixels. Fewer than 0.01% of pixels may be chipped or always lit.

# Specifications

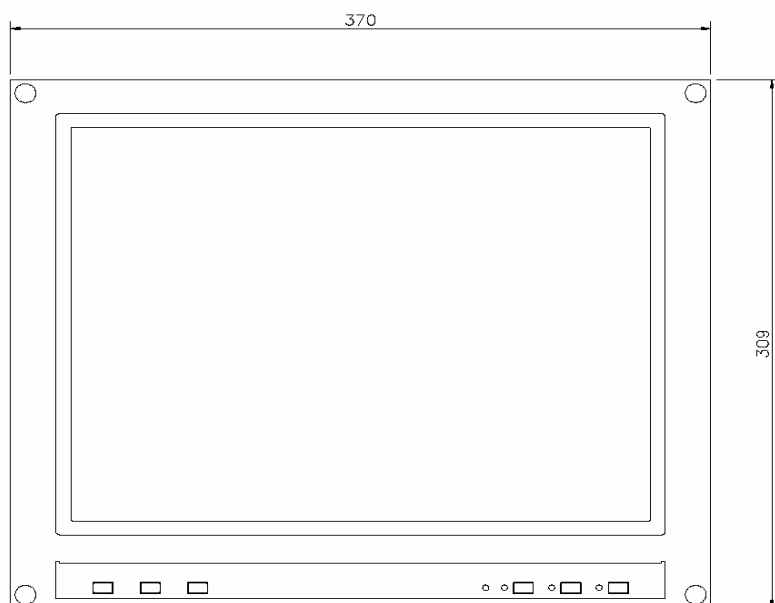
■ <b>Type</b>	: LCD Video Monitor	■ <b>Pixel dot clock</b>	: 79 MHz (maximum)
■ <b>Color system</b>	: NTSC,PAL, BW60,BW50	■ <b>Recommended mode</b>	: 1024 x 768 at 60Hz (Analog)
■ <b>LCD panel</b>	: 15-in(38.1cm),active matrix TFT, anti-glare coating , 0.297mm	■ <b>Input terminals</b>	
■ <b>Display colors</b>	: 16700000. colors	<b>Video A</b>	: Composite video: 1 line, BNC connector x 2, 1 V(p-p), 75 W, bridge-connected (auto termination)
■ <b>Display area</b>	: Width 304.1mm High 228.1mm Diagonal 380 mm	<b>Video B</b>	: Composite video: 1 line, BNC connector x 2, 1 V(p-p), 75 Ω, bridge-connected (auto termination)
		<b>PC input</b>	: Analog RGB: D-sub (16 pins) x1, positive 0.7V <sub>PP</sub>
		■ <b>REMOTE INPUT</b>	: 1 line, RCA pin x 1
		■ <b>REMOTE ASPECT</b>	: 1 line, RCA pin x 1
■ <b>Scanning frequency</b>	(H) 31.5kHz~60kHz(Analog) 15.734kHz (NTSC) 15.625kHz (PAL) (V)56Hz~70Hz (Analog) 59.94Hz (NTSC) 50Hz (PAL)	■ <b>Conditions</b>	: 5 ~40 at altitude 0~2000m Temperature : 5 ~30 at altitude 2000~3000m,
		■ <b>Humidity Altitude</b>	: 20%~85%RH,non-condensing 3000m Max.
■ <b>Viewing Angle</b>	: Left/Right 60/60 Up/Down 55/45	■ <b>Storage Conditions</b>	
		<b>Temperature</b>	: -20 ~60
		<b>Humidity</b>	: 5%~95% RH
		<b>Altitude</b>	: 10000m Max
■ <b>Power Input</b>	: 100~240V AC,50/60Hz 1.2A at 100V 0.6A at 230V Monitor only:	■ <b>Maximum power Consumption</b>	: 35W
■ <b>Dimensions</b>	Width 370mm Height 309mm Depth 66.1mm	With supplied stand:	
		Width 370 mm	
		Height 310.6 mm	
		Depth 142 mm	
■ <b>BACK LIGHT</b>	: 250cd/m <sup>2</sup> (Typical)	■ <b>Net weight</b>	: 3.7kg 4.2 kg (with stand)
■ <b>CONTRAST</b>	: 350:1 (Typical)	■	100mm mount based on VESA regulation is equipped.

\*Pictures may not appear on the some of PC even if frequencies are within this range.

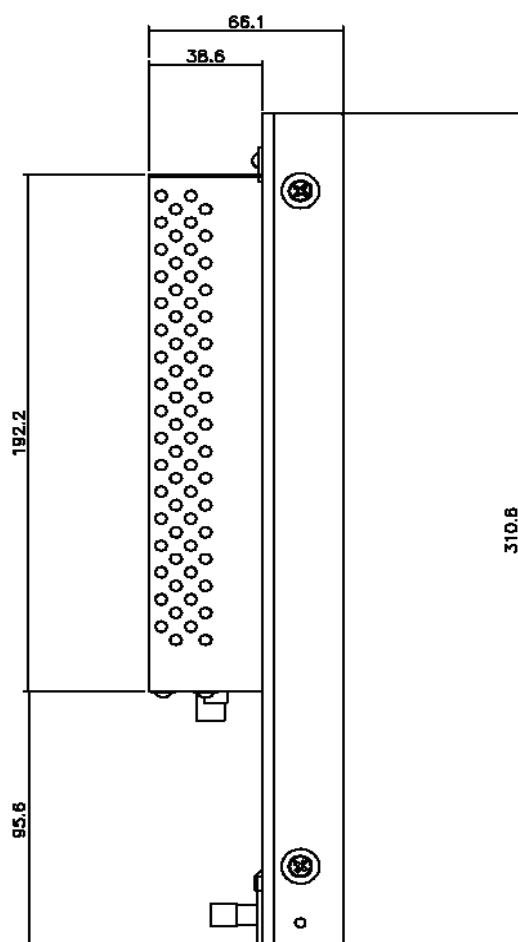
\*.Design and specifications subject to change without notice

## ■ Dimensions

### < Front View >



### < Side View >



## ■ Video Modes (Analog RGB Signal)

Your LCD monitor supports the following industry-standard combinations of screen resolution and refresh rates.

For optimum performance, set your PC to the screen resolution of 1024 x 768 at 60 Hz refresh rate.

Supported Resolution (dots x lines)		Vertical Frequency (Refresh Rate)
VGA	640 x 350 640 x 480	70 Hz 60 Hz
SVGA	800 x 600 800 x 600	56 Hz 60 Hz
XGA	1024 x 768 1024 x 768	60 Hz 70 Hz
US TEXT	720 x 400	70 Hz
Power MAC	640 x 480	67 Hz

## ■ Unknown Video Modes (Analog RGB Signal)

Like all other monitors, the your LCD monitor is designed to work with standard video modes. However, not all video/graphic cards use only standard display modes.

Your LCD monitor uses state-of-the-art technology, which is designed to synchronize to any display mode. We recommend choosing one of the supported modes listed above. If you want to use an unknown mode, do the AUTO SET UP at first. If AUTO SET UP doesn't make adjustments correctly, adjust the CLOCK, PHASE , horizontal position and vertical position manually.



# PARTS LIST

## CAUTION

- The parts identified by the symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety.
- The parts not indicated in this Parts List and those which are filled with lines  $\Delta$  in the Parts No. columns will not be supplied.
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

## ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
CR	Carbon Resistor	C CAP.	Ceramic Capacitor
FR	Fusible Resistor	E CAP.	Electrolytic Capacitor
PR	Plate Resistor	M CAP.	Mylar Capacitor
VR	Variable Resistor	CH CAP.	Chip Capacitor
HV R	High Voltage Resistor	HV CAP.	High Voltage Capacitor
MFR	Metal Film Resistor	MF CAP.	Metalized Film Capacitor
MGR	Metal Glazed Resistor	MM CAP.	Metalized Mylar Capacitor
MPR	Metal Plate Resistor	MP CAP.	Metalized Polystyrol Capacitor
OMR	Metal Oxide Film Resistor	PP CAP.	Polypropylene Capacitor
CMFR	Coating Metal Film Resistor	PS CAP.	Polystyrol Capacitor
UNFR	Non-Flammable Resistor	TF CAP.	Thin Film Capacitor
CH V R	Chip Variable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH MG R	Chip Metal Glazed Resistor	TAN. CAP.	Tantalum Capacitor
COMP. R	Composition Resistor	CH C CAP.	Chip Ceramic Capacitor
LPTCR	Linear Positive Temperature Coefficient Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
		CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

RESISTORS									
F	G	J	K	M	N	R	H	Z	P
$\pm 1\%$	$\pm 2\%$	$\pm 5\%$	$\pm 10\%$	$\pm 20\%$	$\pm 30\%$	+30% -10%	+50% -10%	+80% -20%	+100% -0%



CONTENTS

EXPLODED VIEW PARTS LIST ..... 3-2

EXPLODED VIEW ..... 3-3

PRINTED WIRING BOARD PARTS LIST ..... 3-4

    POWER PW BOARD ASS'Y ..... 3-4

    MAIN PW BOARD ASS'Y ..... 3-5

    FRONT CONTROL 1 PW BOARD ASS'Y ..... 3-5

    FRONT CONTROL 2 PW BOARD ASS'Y ..... 3-5

    BNC INPUT PW BOARD ASS'Y ..... 3-5

    INVERTER PW BOARD ASS'Y ..... 3-5

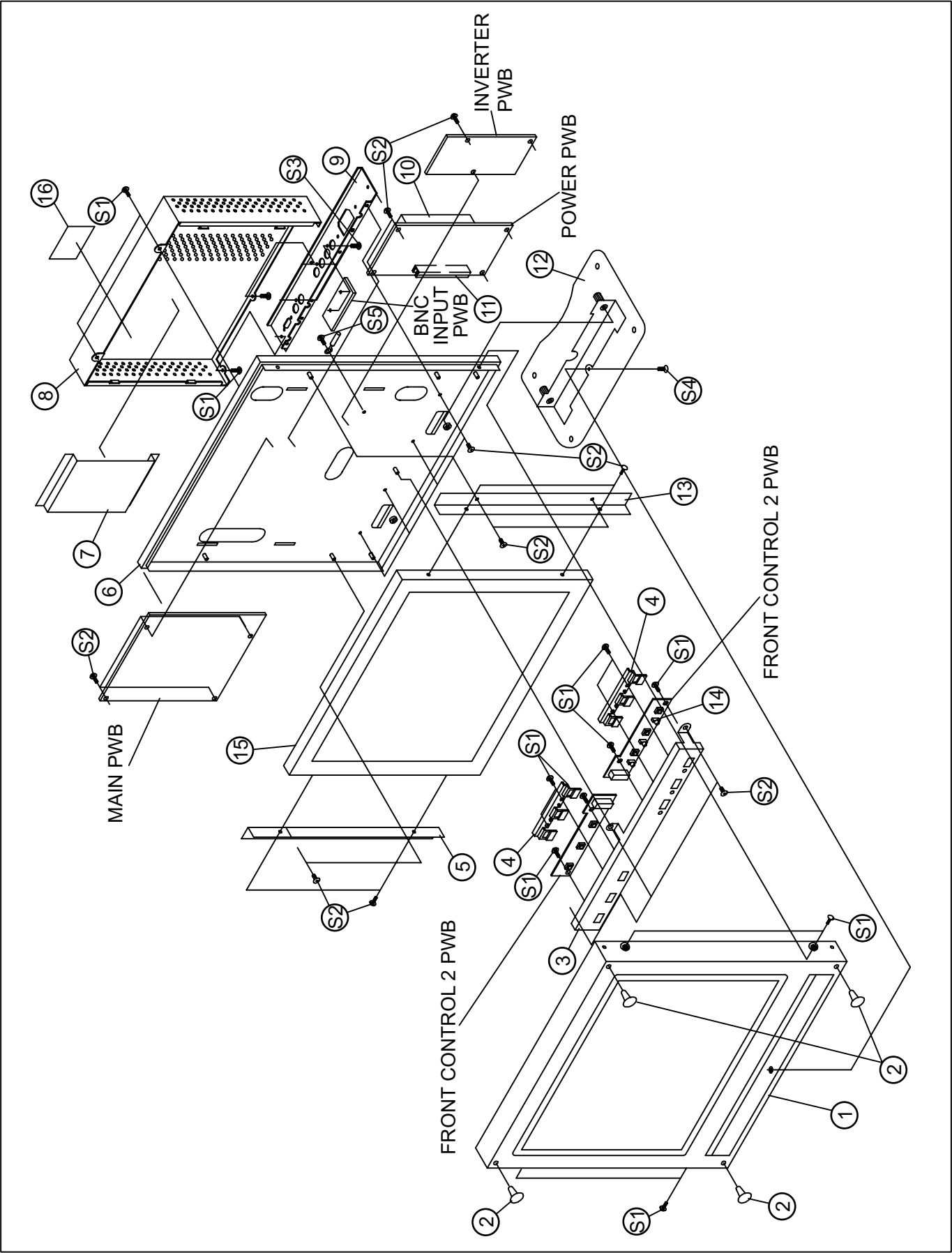
PACKING ..... 3-6

PACKING PARTS LIST ..... 3-6

EXPLODED VIEW PARTS LIST

△ Ref.No.	Part No.	Part Name	Description	Local
1	DA-5642725100	FRONTCOVER		
2	DA-5642678400	CLIP	x4	
3	DA-5642724600	CONTROLBRACKET		
4	DA-5642848800	CONTROLBUTTON	x2	
5	DA-5648736900	LCD BRACKET (L)		
6	DA-5642724900	BACK COVER		
7	DA-5646549200	INSULATOR		
8	DA-5642725200	FUNCTIONCOVER		
9	DA-5642724700	TERMINALBRACKET		
10	DA-5646440601	HEAT SINK (P)	x2	
11	DA-5646425700	HEAT SINK (E)		
12	DA-5642724400	BASE		
13	DA-5648736901	LCD BRACKET (R)		
14	DA-5642673100	LEDHORDER	x4	
15	DA-5051253631	LCD Panel		
16	DA-5030573202	MODELLABEL	LM-15G/E	
16	DA-5030573204	MODELLABEL	LM-15G/C	
16	DA-5030573201	MODELLABEL	LM-15G/U	
S1	DA-7190562313	SCREW (M3x6)	x17	
S2	DA-7000311032	SCREW (M3x6)	x26	
S3	DA-7134161186	SCREW (M3x8)	x3	
S4	DA-7004171116	SCREW (M3x8)		
S5	DA-7160250652	SCREW (M4x6)		

# EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

POWER PWB ASS'Y

△ Symbol No. Part No. Part Name Description Local

RESISTORS

△ R801	DA-5101111400	TMERMISTOR	5Ω	5A
△ R802	DA-5142868490	C RESISTOR	650kΩ	1/4W
△ R803	DA-5142868490	C RESISTOR	680kΩ	1/4W
R084	DA-5142833495	C RESISTOR	330kΩ	1/4W
R805	DA-5142833495	C RESISTOR	330kΩ	1/4W
R806	DA-5142833495	C RESISTOR	330kΩ	1/4W
R807	DA-5130251090	OM RESISTOR	51Ω	1/2W
R808	DA-5130310490	OM RESISTOR	100kΩ	1W
R809	DA-5142833395	C RESISTOR	33kΩ	1/4W
R810	DA-5142833395	C RESISTOR	33kΩ	1/4W
R811	DA-5142810595	C RESISTOR	1MΩ	1/4W
R812	DA-5142147295	C RESISTOR	4.7kΩ	1/6W
R813	DA-5142110495	C RESISTOR	100kΩ	1/6W
R814	DA-5142110295	C RESISTOR	1kΩ	1/6W
R815	DA-5142110295	C RESISTOR	1kΩ	1/6W
R816	DA-5142115395	C RESISTOR	15kΩ	1/6W
R817	DA-5142115395	C RESISTOR	15kΩ	1/6W
R818	DA-5142147395	C RESISTOR	47kΩ	1/6W
R819	DA-5142110495	C RESISTOR	100kΩ	1/6W
R820	DA-5142156395	C RESISTOR	56kΩ	1/4W
R821	DA-5142110495	C RESISTOR	100kΩ	1/6W
R822	DA-5142110395	C RESISTOR	10kΩ	1/6W
R823	DA-5142110595	C RESISTOR	1kΩ	1/6W
R824	DA-5142143295	C RESISTOR	4.3kΩ	1/6W
R825	DA-5134730119	MF RESISTOR	3.01kΩ	1/6W
R826	DA-5142147195	C RESISTOR	470Ω	1/6W
R827	DA-5142182195	C RESISTOR	820Ω	1/6W
R828	DA-5130251090	OM RESISTOR	51Ω	1/2W
R829	DA-5142868995	C RESISTOR	6.8Ω	1/4W
R830	DA-5130333890	OM RESISTOR	0.33Ω	1W
R831	DA-5130210095	OM RESISTOR	10Ω	1/2W
R832	DA-5142815295	C RESISTOR	1.5kΩ	1/4W
R833	DA-5142815295	C RESISTOR	1.5kΩ	1/4W
R834	DA-5134738329	MF RESISTOR	38.4kΩ	1/6W
R835	DA-5142133495	C RESISTOR	330kΩ	1/6W
R836	DA-5134710028	MF RESISTOR	10kΩ	1/6W
R837	DA-5142147295	C RESISTOR	4.7kΩ	1/6W
R838	DA-5142847295	C RESISTOR	4.7kΩ	1/4W
R839	DA-5142847195	C RESISTOR	470Ω	1/4W
R840	DA-5142110295	C RESISTOR	1kΩ	1/6W
R841	DA-5142833395	C RESISTOR	33kΩ	1/4W
R842	DA-5142147295	C RESISTOR	4.7kΩ	1/6W

CAPACITORS

△ C801	DA-5270113301	MF CAPACITOR	0.33μF	275V	M
△ C802	DA-5230108601	C CAPACITOR	4.7μF	250V	M
△ C803	DA-5230108601	C CAPACITOR	4.7μF	250V	M
△ C804	DA-5213019300	E CAPACITOR	120μF	400V	M
C805	DA-5233310291	C CAPACITOR	1μF	1KV	K
△ C806	DA-5230108301	C CAPACITOR	1μF	250V	M
C807	DA-5216021991	ELEC.LOW ESR CAP.	47μF	50V	M
C808	DA-5231310391	C CAPACITOR	10μF	50V	K
C809	DA-5221110391	POLYESTER CAP.	10μF	50V	J
C810	DA-5231347191	C CAPACITOR	470pF	50V	K
C811	DA-5216022191	ELEC.LOW ESR CAP.	10μF	50V	M
C812	DA-5216022091	ELEC.LOW ESR CAP.	1μF	50V	M
C813	DA-5231322191	C CAPACITOR	220pF	50V	K
C814	DA-5222410491	POLYESTER CAP.	100μF	100V	J
C815	DA-5232347191	C CAPACITOR	470pF	500V	K
C816	DA-5216021891	ELEC.LOW ESR CAP.	1000μF	16V	M
C817	DA-5216021891	ELEC.LOW ESR CAP.	1000μF	16V	M
C818	DA-5216021791	ELEC.LOW ESR CAP.	470μF	16V	M
C819	DA-5231310391	C CAPACITOR	1μF	50V	K
C820	DA-5231347291	C CAPACITOR	4.7μF	50V	K
C821	DA-5231310391	C CAPACITOR	10μF	50V	K
C822	DA-5231310391	C CAPACITOR	10μF	50V	K
△ C823	DA-5270113701	MF CAPACITOR	470pF	275V	M

△ Symbol No. Part No. Part Name Description Local

TRANSFORMERS

△ T801	DA-5061377320	SWITCHING		
--------	---------------	-----------	--	--

COILS

△ L801	DA-5061113700	COIL, LINE FILTER	14mH
L802	DA-5062142100	COIL CHOKR	1.5μH
△ L803	DA-5061113800	COIL, LINE FILTER	260μH

DIODES

D801	DA-6641000704	BRIDGES	
D802	DA-6611007740	SILICON	
D803	DA-6615023745	SILICON	
D804	DA-6611007240	SILICON	
D805	DA-6615007531	ZENER	
D806	DA-6611020442	SILICON	
D807	DA-6613003032	SILICON	
D808	DA-6611010407	SILICON	

TRANSISTORS

Q801	DA-6626005100	FET	
Q802	DA-6621032132	SILICON	
Q803	DA-6621025832	SILICON	
Q804	DA-6621025832	SILICON	
Q805	DA-6624000737	SILICON	
Q806	DA-6621025832	SILICON	
Q807	DA-6621025832	SILICON	

IC

IC801	DA-6644063004	IC	
IC802	DA-6640007706	IC	
△ IC803	DA-6642002904	PHOTO COUPLER	

OTHERS

4E01	DA-5646425700	HEAT SINK(E)	
4E02	DA-5646440601	HEAT SINK(E)	
Q801M	DA-5646440600	HEAT SINK(P)	
F801	DA-5054420084	FUSE	250V/2A
△ P801	DA-5056415343	AC INLET	
P802	DA-5057404352	4PIN CONNECTOR	

**MAIN PWB ASS'Y**

△ Symbol No.	Part No.	Part Name	Description	Local
	DA-5097620300	MAIN PWB ASS'Y		

**FRONT CONTROL 1 PWB ASS'Y**

△ Symbol No.	Part No.	Part Name	Description	Local
	DA-5097620400	FRONT CONTROL 1 PWB ASS'Y		

**FRONT CONTROL 2 PWB ASS'Y**

△ Symbol No.	Part No.	Part Name	Description	Local
	DA-5098800629	FRONT CONTROL 2 PWB ASS'Y		

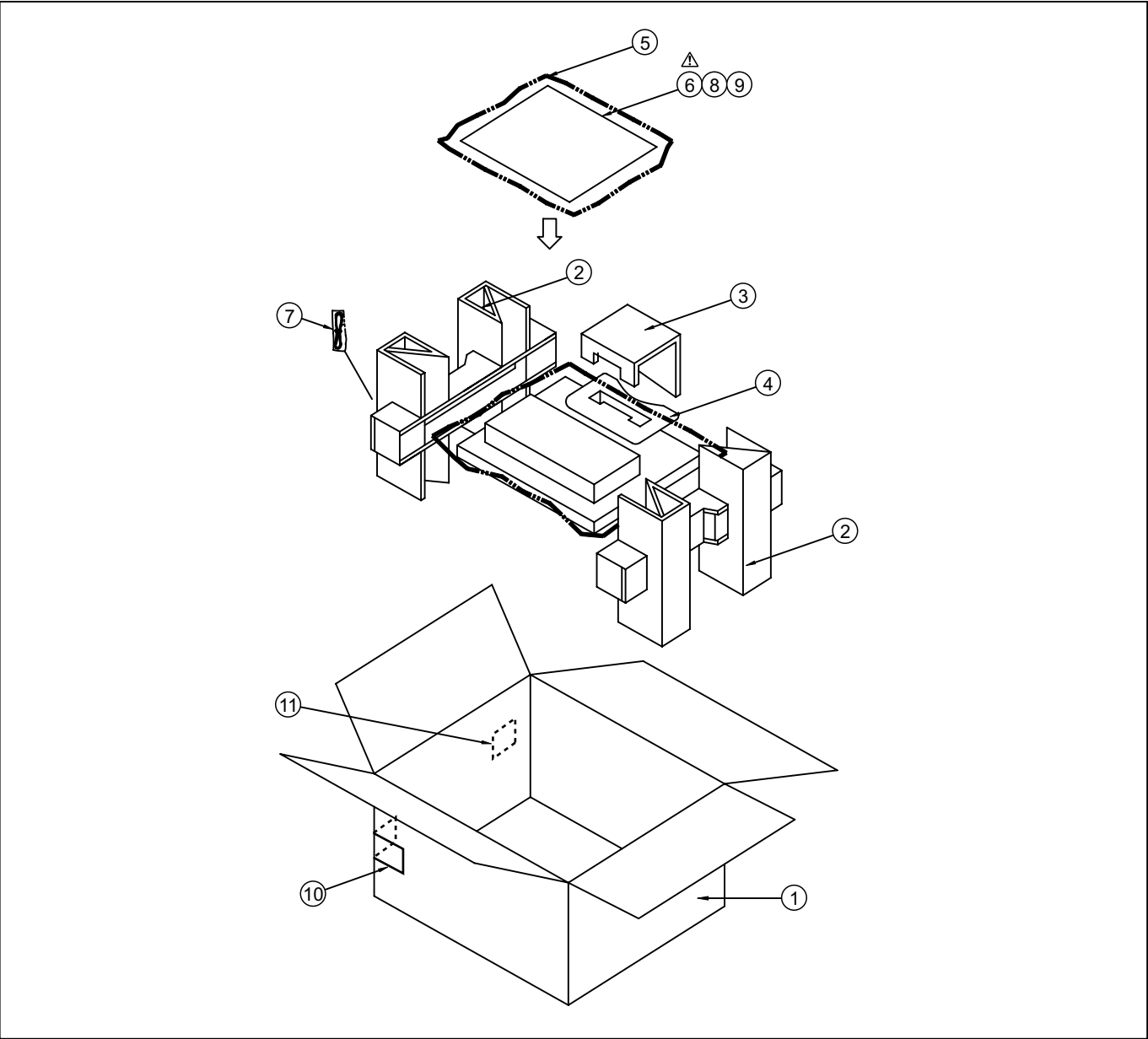
**BNC INPUT PWB ASS'Y**

△ Symbol No.	Part No.	Part Name	Description	Local
	DA-5098800628	BNC INPUT PWB ASS'Y		

**INVERTER PWB ASS'Y**

△ Symbol No.	Part No.	Part Name	Description	Local
	DA-5097613200	INVERTOR PWB ASS'Y		

# PACKING



## PACKING PARTS LIST

△ Ref.No.	Part No.	Part Name	Description	Local
1	DA-9513280156	BLANK CARTON		
2	DA-9513265156	ANCHOR SHEET		
3	DA-6513285356	ANCHOR SHEET-TOP		
4	DA-9533070256	PE BAG		
5	DA-9533070356	ZIP LOCK PE BAG		
△ 6	DA-5030053001	USER'S MANUAL	LM-15G/E	
△ 6	DA-5030053010	USER'S MANUAL	LM-15G/C	
△ 6	DA-5030053011	USER'S MANUAL	LM-15G/U	
7	DA-5056706081	POWERCORD	LM-15G/E	
7	DA-5056705939	POWERCORD	LM-15G/E	
7	DA-5056706089	POWERCORD	LM-15G/C	
7	DA-5056706095	POWERCORD	LM-15G/U	
8	BT-51010-2	WARRANTY CARD	LM-15G/U	
9	BT-51024-1	SERVICE CENTER LIST	LM-15G/U	
10	DA-5030409304	IDENTIFICATION LABEL (Large)	LM-15G/E	
10	DA-5030409302	IDENTIFICATION LABEL (Large)	LM-15G/C	
10	DA-5030409306	IDENTIFICATION LABEL (Large)	LM-15G/U	
11	DA-5030409305	IDENTIFICATION LABEL (Small)	LM-15G/E	
11	DA-5030409303	IDENTIFICATION LABEL (Small)	LM-15G/C	
11	DA-5030409307	IDENTIFICATION LABEL (Small)	LM-15G/U	

# LM-15G /U, LM-15G /E, LM-15G /C

## STANDARD CIRCUIT DIAGRAMS

### CONTENTS

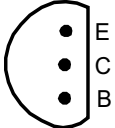
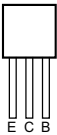
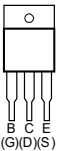
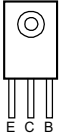
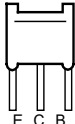
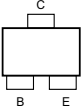
USING P.W. BOARD .....	2-1
SEMICONDUCTOR .....	2-1
BLOCK DIAGRAM .....	2-2
CIRCUIT DIAGRAMS .....	2-3
POWER PWB CIRCUIT DIAGRAM .....	2-3
MAIN PWB CIRCUIT DIAGRAM .....	2-5
FRONT CONTROL 1 PWB CIRCUIT DIAGRAM .....	2-17
FRONT CONTROL 2 PWB CIRCUIT DIAGRAM .....	2-17
BNC INPUT PWB CIRCUIT DIAGRAM .....	2-17
INVERTER PWB CIRCUIT DIAGRAM .....	2-19
PATTERN DIAGRAMS .....	2-21
POWER PWB PATTERN .....	2-21

### USING P.W. BOARD


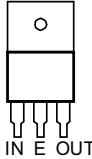
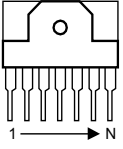
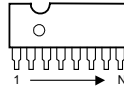
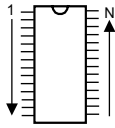
POWER P.W. BOARD	DA-5097613402
MAIN P.W. BOARD	DA-5097620300
FRONT CONTROL1 P.W. BOARD	DA-5097620400
FRONT CONTROL2 P.W. BOARD	DA-5098800629
BNC INPUT P.W. BOARD	DA-5098800628
INVERTER P.W. BOARD	DA-5097613200

### SEMICONDUCTOR SHAPES

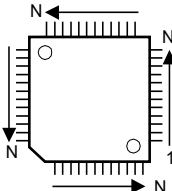
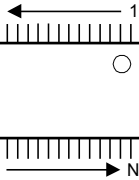
#### TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					

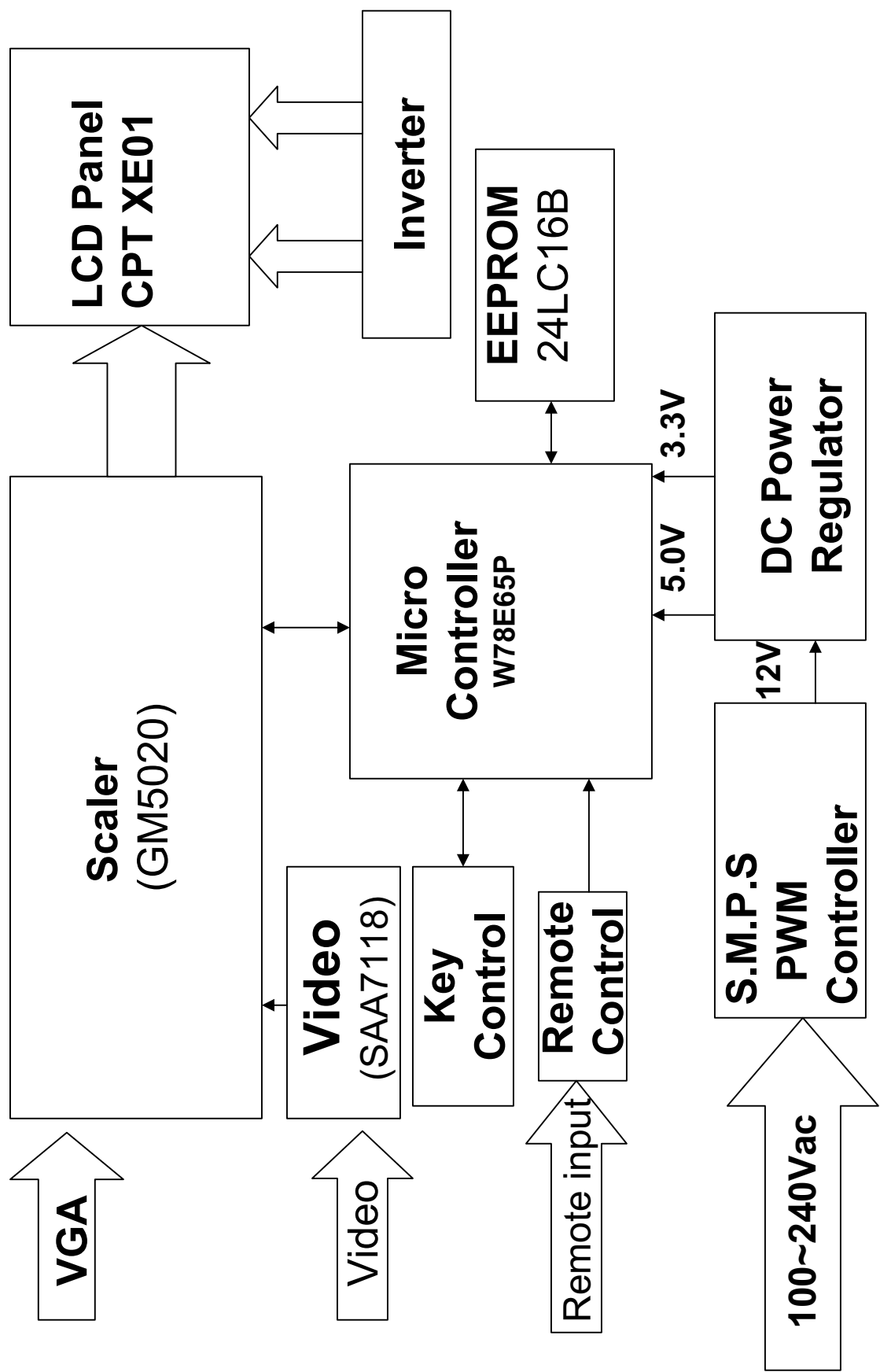
#### IC

BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

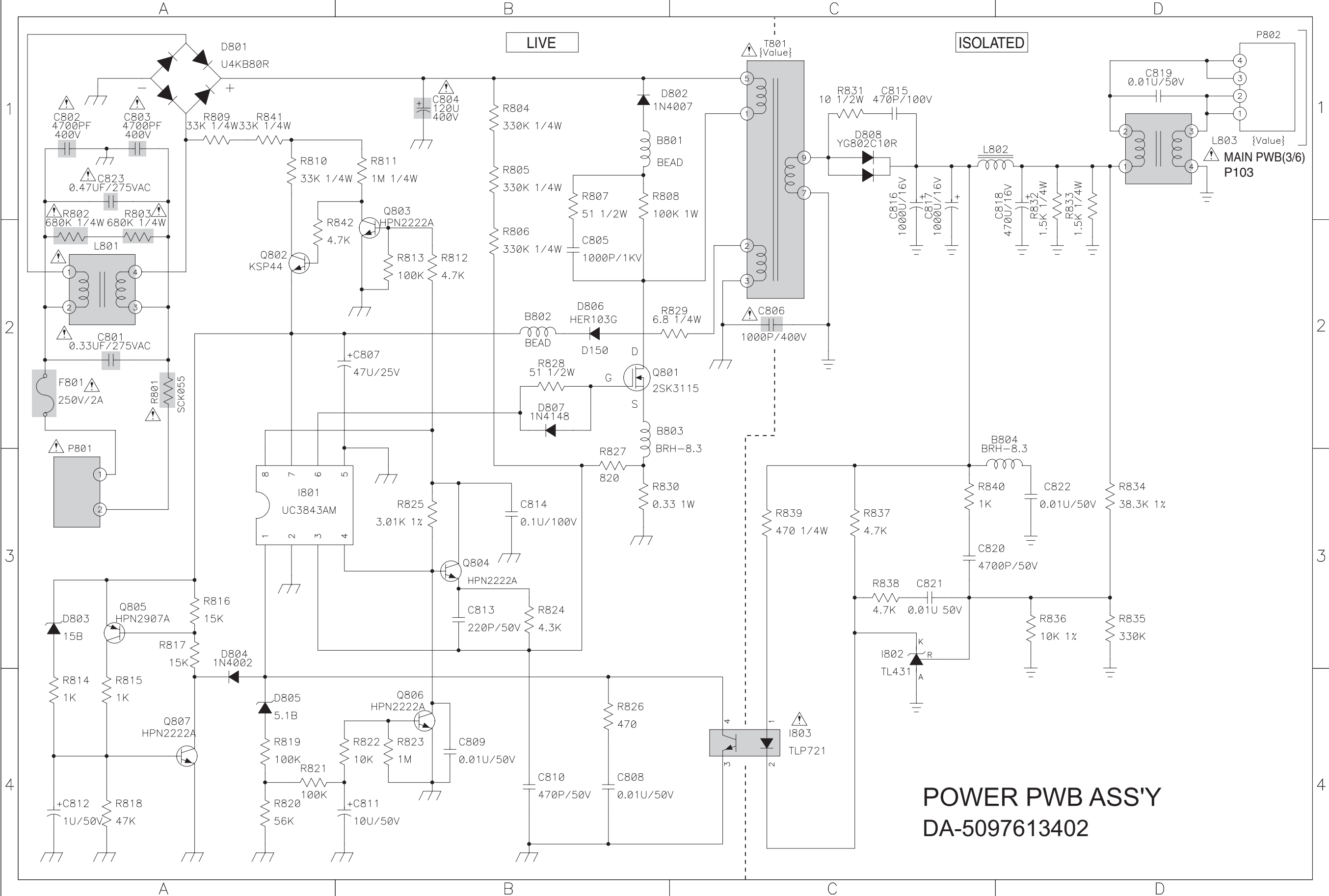
#### CHIP IC

TOP VIEW		
		

BLOCK DIAGRAM

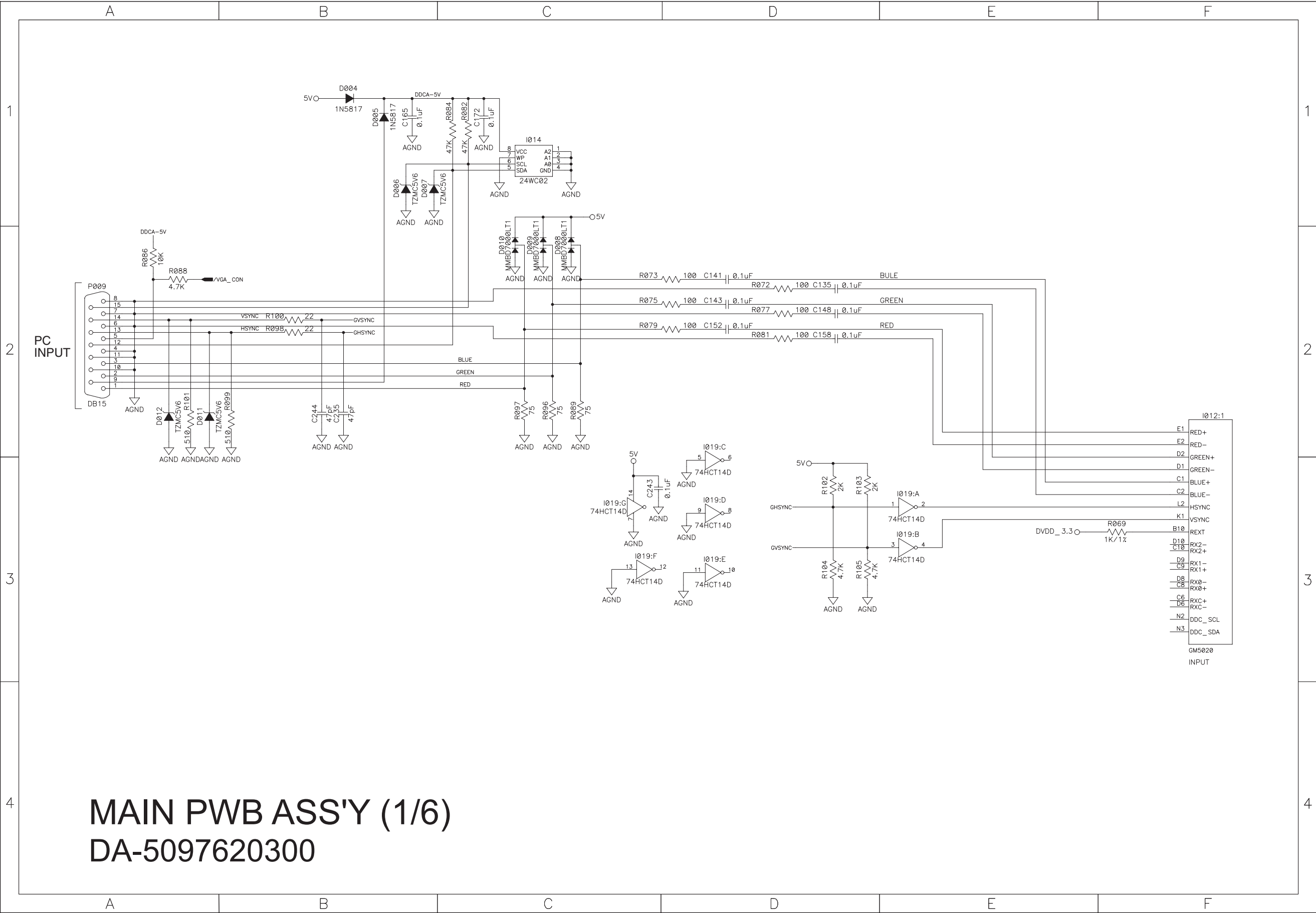


**CIRCUIT DIAGRAMS**  
**POWER PWB CIRCUIT DIAGRAM**



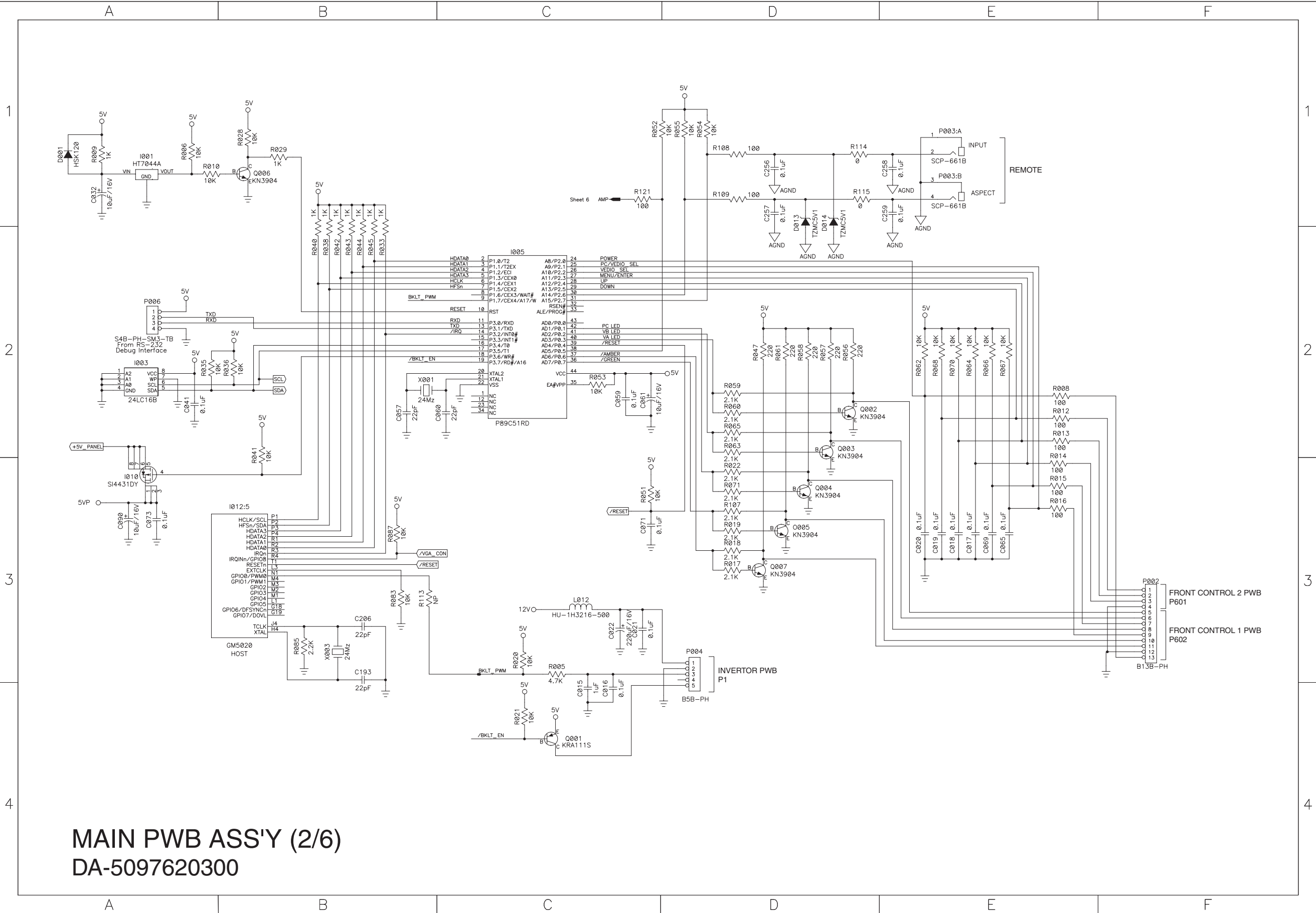


The schematic diagram is only for reference. Avoid replacing individual parts.  
Replace the entire unit only.



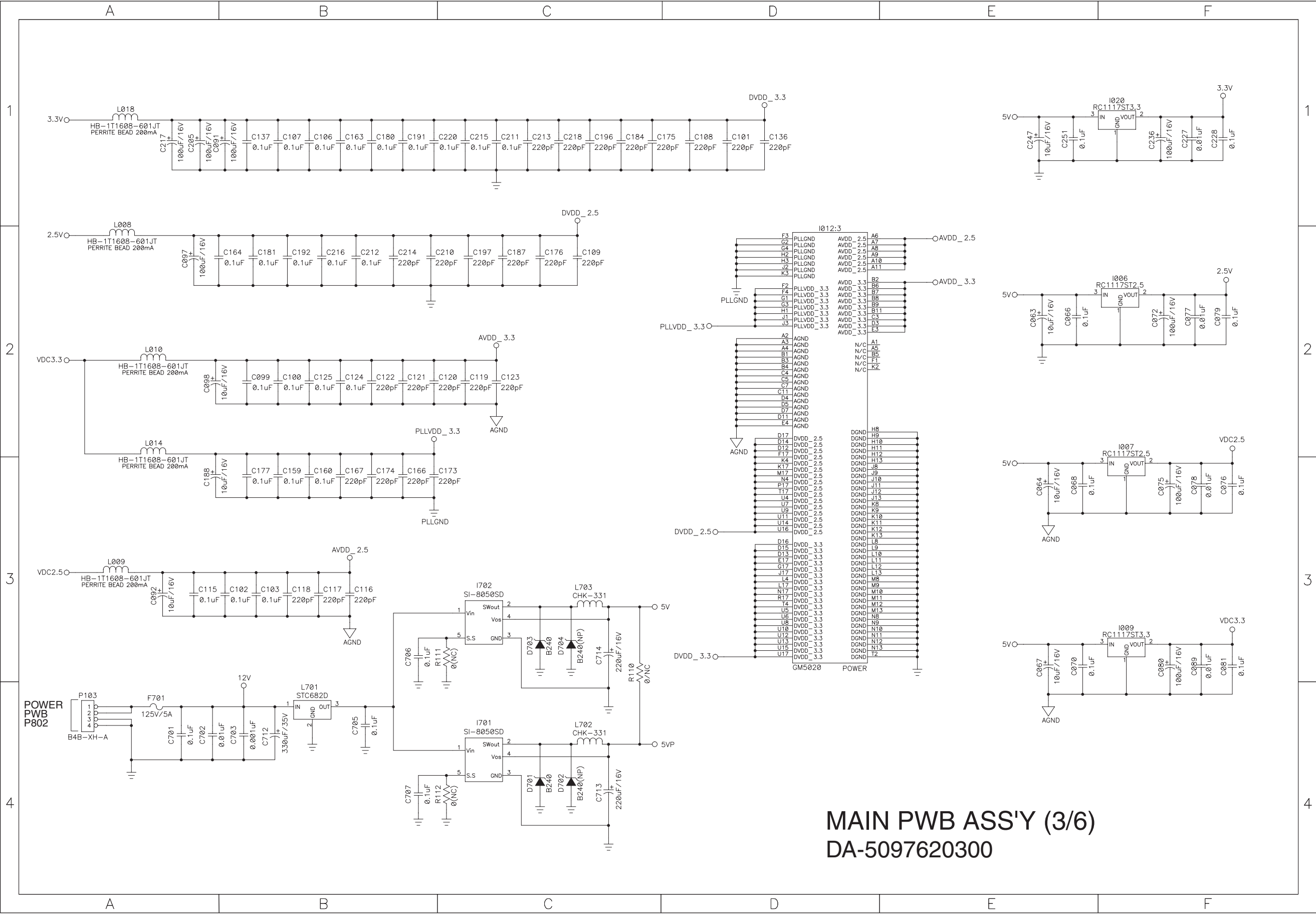
MAIN PWB ASS'Y (1/6)  
DA-5097620300

The schematic diagram is only for reference. Avoid replacing individual parts.  
Replace the entire unit only.



MAIN PWB ASS'Y (2/6)  
DA-5097620300

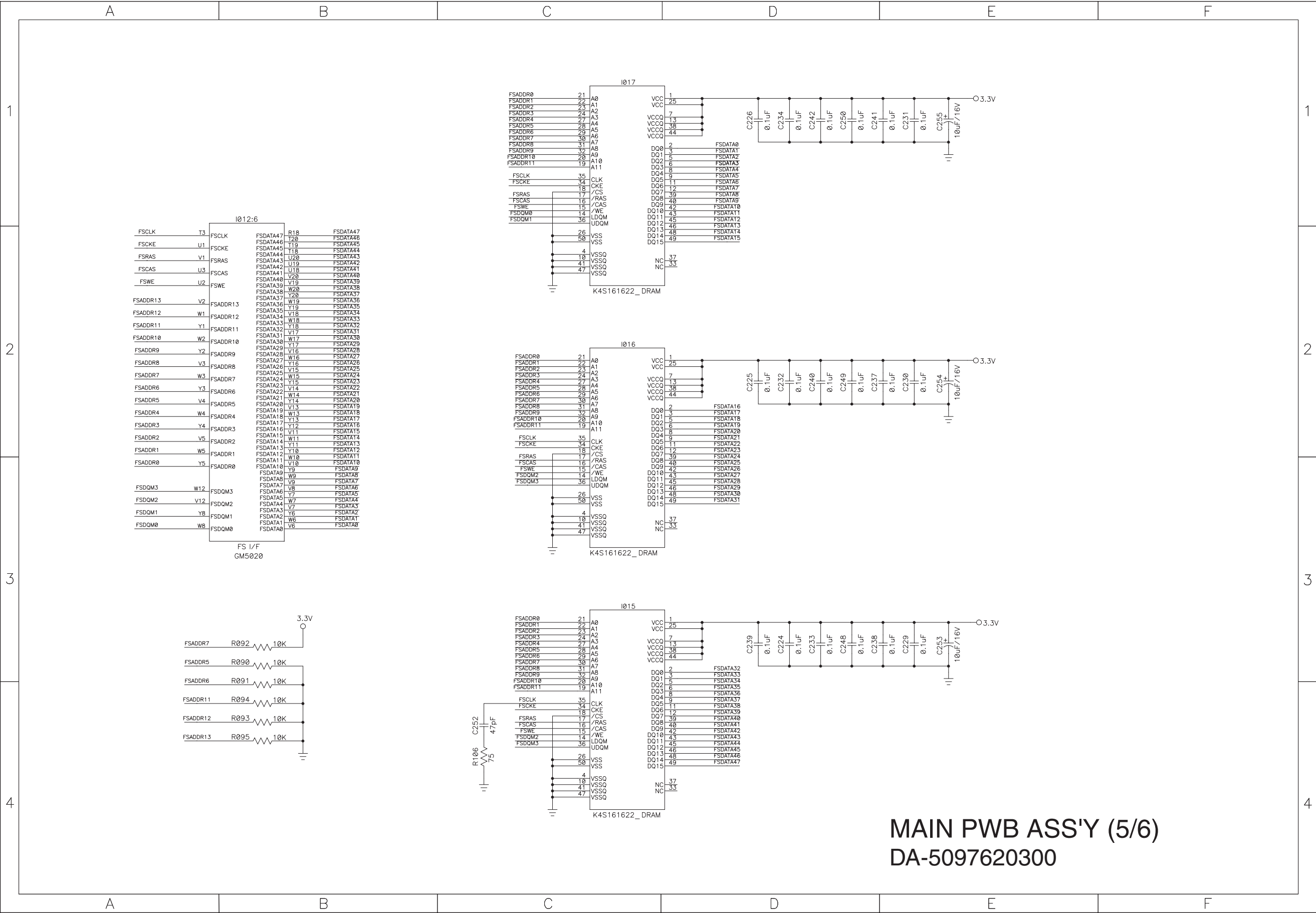
The schematic diagram is only for reference. Avoid replacing individual parts.  
Replace the entire unit only.



MAIN PWB ASS'Y (3/6)  
DA-5097620300

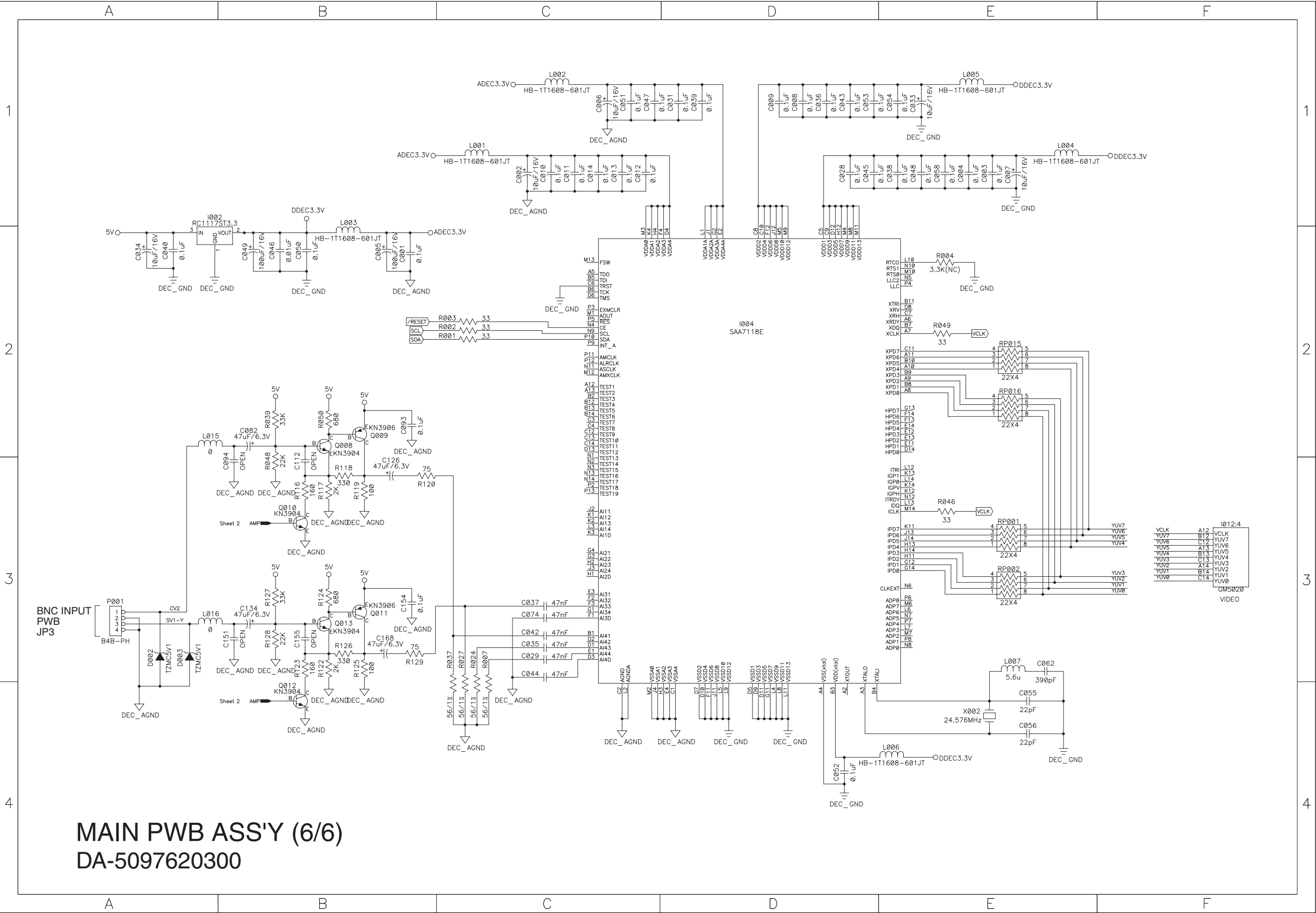


The schematic diagram is only for reference. Avoid replacing individual parts.  
Replace the entire unit only.



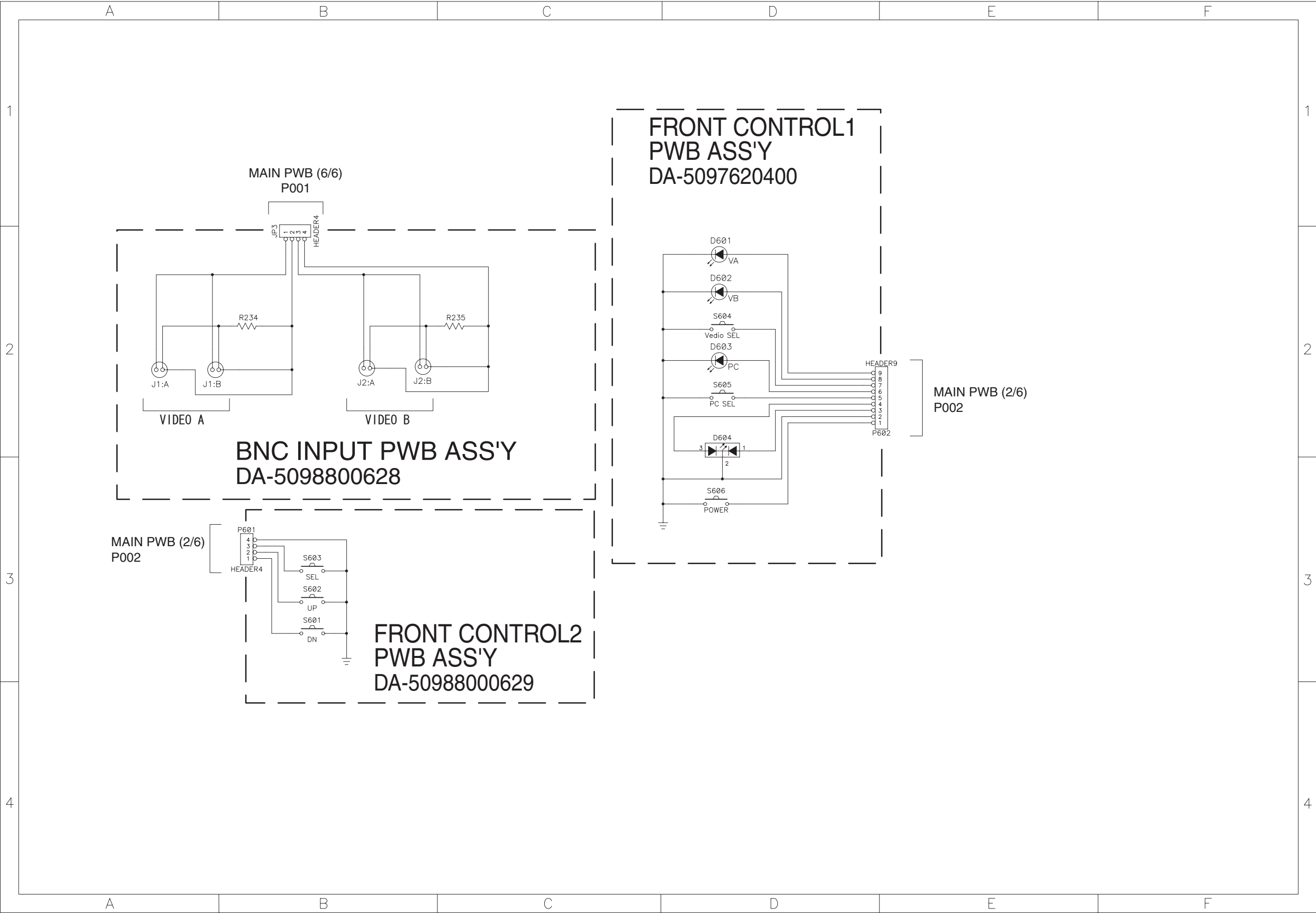
MAIN PWB ASS'Y (5/6)  
DA-5097620300

The schematic diagram is only for reference. Avoid replacing individual parts.  
Replace the entire unit only.



MAIN PWB ASS'Y (6/6)  
DA-5097620300

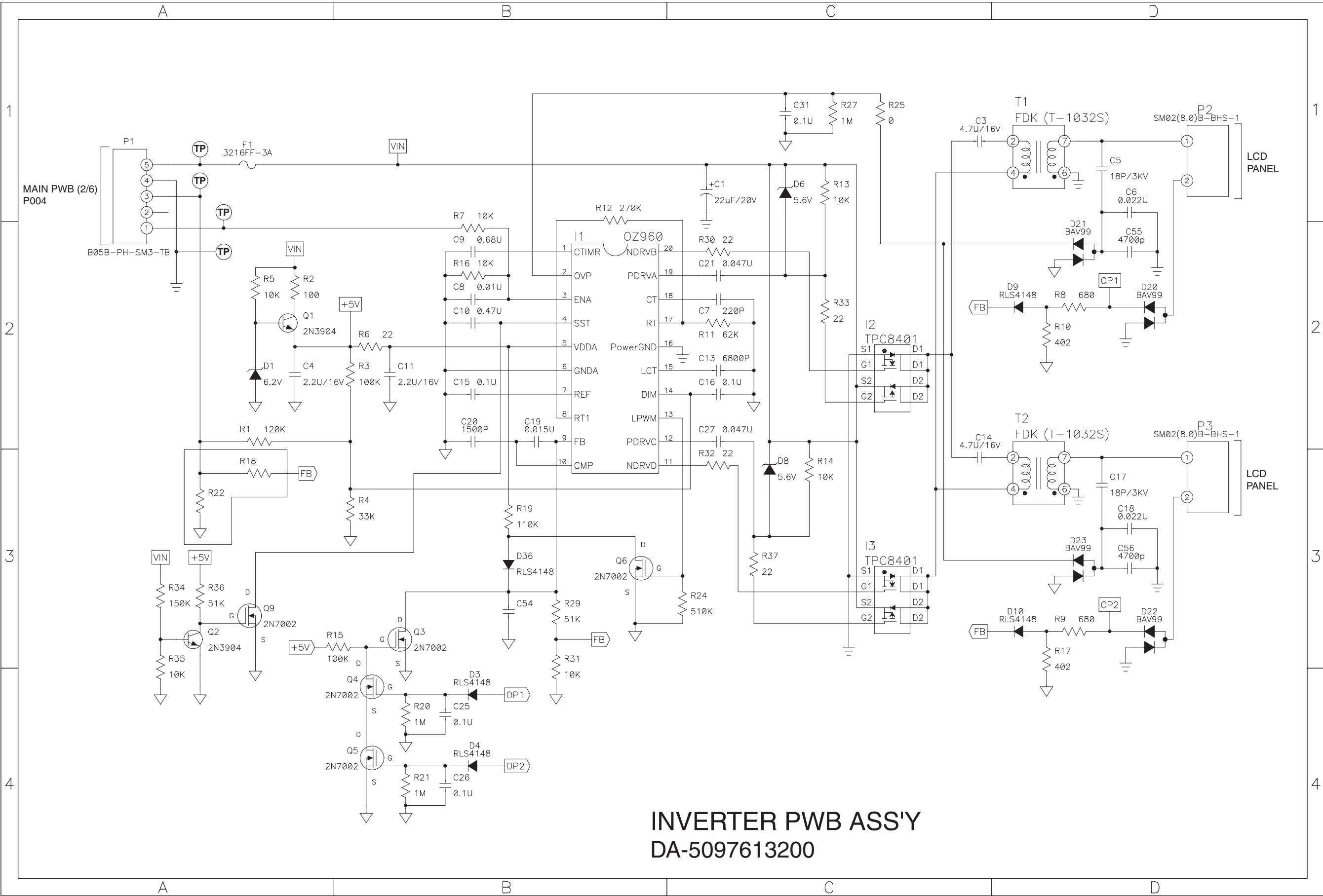
The schematic diagram is only for reference. Avoid replacing individual parts.  
Replace the entire unit only.





INVERTER PWB CIRCUIT DIAGRAM

The schematic diagram is only for reference. Avoid replacing individual parts.  
Replace the entire unit only.



INVERTER PWB ASS'Y  
DA-5097613200



## PATTERN DIAGRAM

*POWER PWB PATTERN*

